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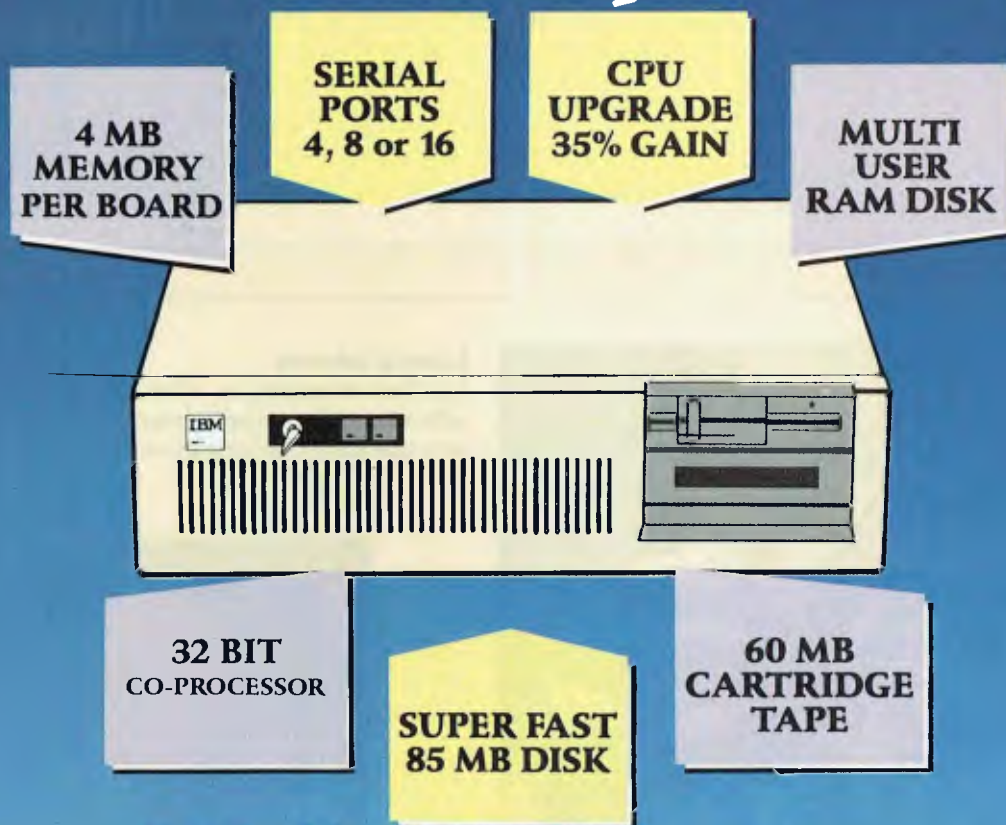
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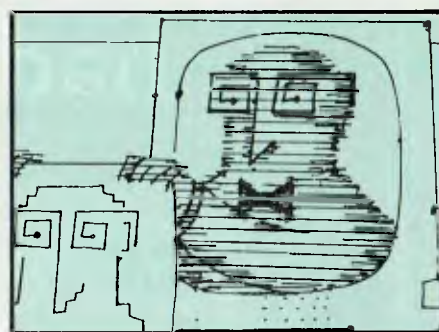
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Photography: John Hay

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# Expo expose

**D**windling attendances at a number of major PC shows recently have been cited as an indication that personal computing exhibitions are on the way out. While this may be true to an extent, the current predictions of doom and gloom are a trifle premature.

Take Online Information Expo 86, for example, held recently in Sydney by the Libraries Association of Australia. Every conference session was packed to maximum capacity and many speakers were faced with an audience overflowing into the aisles and along the back wall. The accompanying exhibition also drew large crowds in between conference sessions, and featured a variety of equipment specific to PCs and online database searching, including the first local showing of PC-based CD-ROM players.

I had not seen such a display of enthusiasm since the very early PC shows in 1983, when the whole idea of affordable personal computers was new and exciting. Organisers of the more recent major shows, however, have had to admit to a shrinking crowd. Does this new activity indicate the reversal of a downward trend?

Certainly not — and the reason behind it all is that the audience itself is changing. Back in the good old days, PCs were new. Few people owned one and everybody wanted to get a look at everything that was available. Nowadays, those who had any interest at all have finally committed themselves, bought a PC of some variety, and now want to find out what to do with it. Generalised PC shows no longer hold any appeal to users who have made a commitment to a particular brand. (After all, nobody ever likes to be informed that a product is now available at twice the power and half the cost of the one they purchased, do they?)

Specialised PC shows, however, are more popular than ever, as an increasingly educated audience seeks



out information on further applications. Hence the successes of the Online Information, Videotex, Communications and other more focussed exhibitions. The PC industry, like any other, is evolving along with its market, and exhibition organisers' failure to appreciate this will result in poor attendances, no matter how much razzle-dazzle and promotion is put into future events.

Most market researchers will agree that new PC buyers are a shrinking market, so it stands to reason that attendances at generalised PC shows will continue to fall substantially. Although PC sales will continue to grow each year, more and more of these will be due to individuals or companies buying second or subsequent systems. The audiences who packed out the early PC shows were a fairly representative chunk of a general public curious to see what all the fuss was about, spurred on by a rather over-enthusiastic trade press.

However, following the widespread acceptance and 'legitimisation' of PCs as a business tool, desktop computer systems at long last hold little more mystique or attraction to the general public than a typewriter, photocopier or any other piece of office

equipment. And so it should be.

Exhibition organisers should be more aware of the new market sectors being created by the development of new PC applications, and tailor their shows accordingly. One reason the Online Information Expo generated so much interest among its visitors was the widespread infiltration of PCs into a field previously dominated by mainframes. Most of the librarians attending the Expo were used to logging onto mainframe-based databases through dumb terminals, and were just discovering the potential benefits of using PCs to do the same job. This is why the atmosphere was in many ways similar to the early PC shows.

Many online database suppliers have developed friendlier PC-based communications programs to access and search their databases, and the majority of stands featured some variety of PC. Indeed, the Online Information Expo's keynote speaker (Dr Roger Summit, president of the Lockheed DIALOG service), claimed that more than 80 per cent of the DIALOG subscribers were 'end-users' with PCs rather than the more traditional government or university libraries. He went on to say that information retrieval skills through a PC would soon become a vital prerequisite to business managers of the future.

Obviously, Online Information Expo 86 struck a chord, and I hope that future specific exhibitions will result in similar successes, but this is dependent upon exhibition organisers accurately gauging the sentiment of current PC users and addressing their needs. The formula that worked last year or the year before will not necessarily work again next year. When it comes to PC shows, bigger is not necessarily better, and accurate and astute audience targeting is the key to success. As in the computer magazine industry, generalisation is giving way to specialisation, reflecting the evolution of a maturing market. ■





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# Frittering away

The Xeroxed sheet tucked beneath the foam at the very bottom of the box, says: "Dear customer, you may blow a fuse in your monochrome display in situations where you are switching display modes back and forth between color and monochrome."

Now, I have no idea where to find the fuse in my monitor, and even if I did, I'd be loath to challenge the bright yellow sticker on its underside imploring, in melodious Italian (among four other languages), "*Attenzione! Non aprite il coperchio in nessun caso.*" In other words: "Stick your fingers in here and they may soon resemble deep-fried zucchini."

Still, I plunge ahead with the installation of a graphics card that promises everything from running color and monochrome monitors simultaneously to super-duper color and monochrome enhancements. Then I discover the errata sheet.

"Page 20:

Flicker Free Selector:

OFF position:

IS: the bottom two pins of the three pin jumper

SB: both pins of the two pin jumpers"

Oh, "SB" apparently means "should be". Okay. But yet another loose page, this one a "Jumpers Setting" sheet folded around the errata, reveals schematic drawings apparently drawn by a bright six-year-old. Under the rubric "Flicker Free Mode", a little hand-rendered box representing a jumper clearly surrounds two tiny scrawled circles meant to signify pins — a graphic illustration of the "SB" condition. Beside it is a clear legend: ON.

Then I discover a note on the back of the errata sheet: "Do not run SCREEN-SAVER program." In nessun caso (as they say in sunny Italy) am I about to tempt the Gods of the Fuses, so I make a mental note

to turn off my screen protection software (I'm working in *Superkey*) and protect my monitor. Then I fire up the machine.

Amazing! Cursors on both displays, as advertised! More amazing still: the one on the color monitor keeps sliding up the screen. I turn off the machine pronto. A quick consultation with the manufacturer reminds me that the back panel of my display includes a vertical-hold knob. Despite the comings and goings of a variety of display cards, it has gone untouched till now.

The manual reveals that the video commands of DOS's MODE are useless; in their stead the manufacturer has supplied a floppyful of software. To make *WordStar* display 44 rows and 132 columns, I patch good old WS.COM, fire up a special screen driver and squint at the tiny main menu on my green screen — along with a message from *WordStar* that it hasn't been debugged fully for such displays.

Not that this matters. The screen keeps flashing at every keystroke, producing instant headache. All I want to do is get back to DOS, but *WordStar* won't let me. Flailing about with arcane key combinations to break the logjam, I accidentally invoke *SideKick*. Every bit of phosphor on the screen suddenly disappears in a puff of green.

The 10 seconds I wait for the reappearance of the cursor seem like 10 eons, but the screen does brighten once more. No harm done, of course. The machine is still fine; my data is intact. Nothing is lost — except the valuable time my computer is supposed to save me. The monitor's fuse hasn't blown. My own has.

Fritter — fruitlessly wasted time — is the new curse of the computer class. The sheer number of hours dissipated in installing or understanding even the most rudimentary new product has

driven many of us to look upon new hardware and software with gimlet eyes. Enthusiasts who once salivated at the mere appearance of each new package now respond with a nervous tic. We're all too aware that getting the program or equipment up and running is going to entail grief, heartache, intimate involvement with the power switch, and afternoons that have a way of turning into evenings.

The sands of time can flow irretrievably down the drain in dozens of ways. Borland's *Reflex* software runs only on a color monitor (in hi-res white-on-black), but if you've got two monitors and try to boot it up from monochrome mode, the thing goes into a dead hang that requires a complete reboot.

An upgrade may offer fritter-by-way-of-improvement. In the new relational *PC-File/R*, many of the queries that *PC-File* users have come to think of as second nature must now be entered in different forms. Sure, I can learn to enclose field names in quotes when requesting information. Why must I bother?

The "almost there" fritter, of course, has been well documented in the literature. Named for the classic cry uttered by someone who is "just a few minutes away" from completing a program or printing a document in the proper format, it refers to the five-hour minimum needed to complete the task in question.

Bug fritter has come to be on the menu of everybody who uses a computer; a dozen new flavors arrive each day. Of late I've run across programs that wipe out DOS upon exiting; programs that confuse erased files with legitimate ones; programs that don't quite mesh with DOS 3.0. Nothing is lost, of course; nothing but time and patience. ■

*Stephen Manes is a regular contributor to PC Magazine*

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# Paperless office?

One of the original driving forces behind the PC invasion was the prospect of the 'paperless office'. The launch of PC Australia, however, seems to have generated exactly the opposite effect and the editor's desk appears to be gradually sinking beneath a mountain of paper. In a bid to prevent his precious XT from being engulfed forever, Ian has extracted the following letters from the pile.

## All work and no play.

As a subscriber I am writing to let you know that I think you are doing a wonderful job and I hope you keep up the good work.

Your 'User-to-User' and 'Tech Notebook' sections are extremely interesting and informative, but there is one topic I feel your magazine fails to touch on and that is games and entertainment. I am in the business of writing software packages for IBM PCs and I find that an hour or two a week playing games and being entertained by the PC keeps my productivity and enthusiasm at a very high level, so let's see some space for the entertainment aspect of our computers.

I would also like to see more information on exactly which computers are compatible with the IBM PC. Keep up the good work and keep us all informed about the goings on in the PC arena.

Grant Austen  
Sunbury, Vic.

*As a rule, PC Australia is directed at those who use their PCs in the workplace and will continue to concentrate primarily on the business applications of PCs, but you do have a point. Engaging in a little covert eavesdropping after a recent user group meeting, I heard the EDP Manager of a major bank and the PC Coordinator of an equally major*

*mining company discussing the intricacies of extracting oneself from Zork III. Business users do appear to have the time to dabble in entertainment software now and again, so long as the boss isn't around.*

*With this issue you are in luck, as Les Stein's 'Lifestyle Software' article includes a review of a program which teaches you how to win at blackjack (pontoon). But I must stress that PC Australia will normally place a strong emphasis on business issues.*

## More accolades

Thank you for the first few issues of PC Australia. I have enjoyed most of the articles on word processing, spreadsheets and PC communications (such as BBS and Viatel). The user-to-user section has also been helpful. Thank you so far. Could you please include some information about what artificial intelligence systems have to offer?

John Mantley,  
Stafford, Qld.

*Several PC Australia readers have asked for further coverage of artificial intelligence and its application with PCs, and you will be pleased to note that this month's PC Essay covers that very subject. Expert Jeffrey Rothfeder covers artificial intelligence concepts in great detail, and puts to rest some of the myths which surround this topical field, no longer the sole domain of theoreticians and computer scientists.* — Ed

## A rejection

As you may guess from the printer this letter was produced on, I find that in my particular case, since I do own a Macintosh, your suggestion of another IBM computer magazine is as useful as the proverbial chocolate

teapot. Please do not send further issues.

Be that as it may, I wish you all success in the launching of PC Australia. I found the content of the first issues were interesting, but naturally not of immediate relevance. This may change if MacCharlie is highly successful. I'll wait and see.

If the 68020 chip delivers all that it might, I may be able to compete directly with your "640K RAMbo" (Stein Way, October 1985). In the meantime I intend to do all my text processing on the Mac and serious number-crunching on a CDC 825 mainframe or get access to a friend's IBM PC AT.

Dr M. A. Hooper,  
St Peters, NSW.

*Aha — so you admit that the IBM PC family still has a useful purpose in life. At least you are not as far gone as most Macintosh users.* — Ed

## Back issues again

Congratulations on your fine magazine and many thanks for your free PC user's subscription. Thanks also on behalf of your readers for the implementation of the PC listing disks. This will add further depth to an important publication.

May I ask a favor? I picked up a copy of the October issue at a MELB-PC meeting and although I filled in the subscription form fairly promptly, I missed the November issue, but all the others have been received. Is it possible to obtain a copy of the November issue?

Bruce Bowditch  
Mentone, Vic.

*Back issues are still available for all issues of PC Australia, but supplies are running low, particularly the earlier copies. So if you have any gaps left in your collection, contact the circulation manager soon!*

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You're invited to take up a free subscription to PC Australia, but only if you R.S.V.P. with the serial number of your PC.

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# News

## Compaq reveals Portable's successor

CCA Systems, the Australian subsidiary of Compaq, has released the Compaq Portable II, a scaled-down version of the powerful 286 Portable and the inevitable successor to the original Compaq — the world's best-selling portable PC. True to form, CCA Systems put on a show that was hard to beat, launching the Portable II at Sydney's Gazebo Hotel, with the catchcry 'smaller, lighter, faster'.

The Compaq Portable certainly is smaller (45 x 35 x 19cm), lighter (10.7kg) and faster (8MHz) than its predecessor, along with most of its fully-functional transportable PC competitors. However, a high degree of PC compatibility has been maintained despite the extra features crammed into a unit no bigger than a sewing machine and easily stowable under a standard aircraft seat.

Three models are available: the 256K, single 360K drive Model I; the dual-drive Model 2; the 640K, 10M hard disk Model

3. The new releases will lead to the eventual discontinuing of the arm-straining Portable 286 Model 1, although the powerhouse Portable 286 Model 3 (with 20M hard disk and cartridge backup) will be around as the top of Compaq's portable range for some time to come.

The Compaq Portable II features an 8MHz 80286 processor with a keyboard-selectable 'gear change' down to 6MHz for greater compatibility with the PC AT. Keyboard control is also exercised over the keyboard click and display mode (high resolution monochrome or grey-scale graphics). Of the full-sized PC expansion slots mounted within the Portable II, one is occupied by the standard Compaq video display driver (with external RGB and composite output). Another has a three-quarter length Compaq board which controls all disk drives and a parallel and serial port (using a custom-made NEC controller chip). This leaves two



CCA's new Compaq Portable II: smaller and faster

slots for further expansion.

The Compaq Portable II is expandable to 2.1M of RAM on the motherboard, and a further 4.1M using extra expansion boards. The use of one-third height floppy disk drives, a half-height hard disk and smart VLSI circuitry on the I/O controllers has allowed Compaq to shrink the new portable to an even more manageable size. Compaq sees this product as an evolutionary development of its flag-

ship Portable, and the basis of its marketing strategies for the next few years and does not appear to have (as many have suggested), any immediate plans for a laptop PC compatible.

According to Ian Penman, managing director of CCA Systems, the market that Compaq is aiming at demands full functionality above everything else, and is quite happy with a reasonably portable compatible, provided it has the necessary power.



## TOP TEN

- |                    |                              |
|--------------------|------------------------------|
| 1. 1-2-3           | — Lotus Development Corp.    |
| 2. Multimate       | — Multimate International    |
| 3. Symphony        | — Lotus Development Corp.    |
| 4. Framework       | — Ashton-Tate                |
| 5. dBase III       | — Ashton-Tate                |
| 6. Open Access     | — Software Publishing Inter. |
| 7. Word (PC ver.)  | — Microsoft                  |
| 8. Display Write 3 | — IBM                        |
| 9. Multiplan       | — Microsoft                  |
| 10. Dataflex       | — Data Access Corp.          |

The PC Australia Top Ten is derived from monthly surveys of more than 240 PC software outlets by Focus Research.

# Local developer boosts AT power

The Sydney company CPU Plus has developed an upgraded version of the PC AT which incorporates an 85M hard disk, 60M cartridge tape backup unit, eight serial ports and an upgraded CPU (all of which are mounted inside the AT system unit) for a recommended retail price of \$22,000. Each of these components is also available separately from CPU Plus, which makes up AT systems to order for PC dealers.

The managing director of CPU Plus, Colin West, has a strong background in multi-user Unix-based systems, and sees a bright future for Microsoft's Xenix on the AT, particularly when the new Xenix System V arrives on the scene. He claims that the souped-up AT would perform as well as a similarly configured NCR Tower, ICL Clan or AT&T 3B2, but would cost up to 50 per cent less.

CPU Plus sources its products from various companies in Japan and the US, and has developed its own disk controller firmware. According to West, the company was established with the primary goal of providing powerful, cost-effective computing on the IBM PC AT, by increasing the CPU

and disk speeds where the usual bottlenecks occur. He sees the company as a link between PC dealers and sophisticated hardware solutions that would not normally be available off the shelf.

To provide technical support, CPU Plus has signed an agreement with 3M, which will be assembling and burning in the AT configurations in volume, handling repairs and maintenance, and providing an Australia-wide warranty. Although the official IBM 90-day warranty is technically made void by the modifications, CPU Plus will provide its own six-month warranty with each of the upgraded ATs.

According to West, future CPU Plus products will include a 12.5MHz AT system board replacement, and further designs incorporating the new Toshiba 1 megabit RAM chips, which will allow up to 6M of RAM on-board.

CPU Plus is marketing its products to IBM PC dealers and value-added resellers (VARs), who may either selectively order what components they need and build a system themselves, or provide CPU Plus with a base



*CPU's managing director, Colin West: sees a bright future for Microsoft's Xenix on the AT.*

model AT and allow them to build up a system to order. With Focus Research predicting about 9000 AT sales in Australia this

year, the company thinks that it has tapped into a lucrative and expanding sector of the PC market.

## Local PC portfolio manager

An Australian-made stock market portfolio management system which will retail for \$249 has been released by Arcom Pacific. *Stock Executive*, for IBM PC and compatibles, is based upon specific stock trading techniques, and encourages the investor to set 'target' and 'stop loss' limits on each share. The user is prompted by on-screen action lists and audible alarms whenever prices fall outside the preset limits.

*Stock Executive* assumes that

the user will make a purchase only after deciding the target value at which he or she is prepared to take a profit. The target value would normally be calculated in a formal manner using charts or fundamentals. It also assumes that the investor would like to follow 'stop losses' — a value which follows at a fixed distance below the share price when it is rising, but which remains fixed should the share start to fall. Thus the user can be alerted to price falls which con-

stitute a significant trend change.

Hamish Cameron, designer of the package, claims it is based on the fundamental philosophy of making small losses and big gains and has the ability to improve trading performance by forcing investors to act on present information, rather than carrying all the share data around in their heads. Another benefit of *Stock Executive* is claimed to be its ability to produce stock trading histories, general 'strategy' documents on unrealised profits

and tax return reports. As Australian tax laws change, the package will be updated to reflect the changes.

*Stock Executive* allows a number of portfolios to be created, each secured by its own password. This enables investors to spread their tax liability by registering certain purchases in the name of a spouse, for example. Keeping separate portfolios allows a running tally to be kept, so a check can be made on realised and unrealised tax.



# VideoShow premieres in Australia

Almost a year after it was first previewed by Ben Rosen at PC 85, local PC graphics specialist, Dimension Graphics, has announced the Australian release of the VideoShow presentation graphics system. The VideoShow unit reads graphic images from standard PC format disks and may be operated from a control panel or via a handheld remote controller, outputting high resolution (2000 by 1300 pixel) images in up to 1000 colors to a television, monitor or video slide projector. VideoShow can also generate hard copy images through a 35mm slide developer or a high resolution color printer.

General Parametrics Corporation, the American developer of VideoShow was another discovery by Rosen, the venture

capitalist who has helped fund such PC industry successes as Compaq and Lotus Development Corp. Rosen made good use of VideoShow during his keynote address at the PC 85 conference, to the point where the audience was more excited about the product than the content of his talk. Most of the images were created on his Compaq Portable in his hotel room the evening prior to his talk.

The base model VideoShow 150 is about half the size of a PC system unit and can operate on its own or as a PC peripheral during slide preparation. Images are prepared using General Parametrics' *PictureIt* software, or existing PC graphics packages such as *Mirage*, on an IBM PC



The VideoShow presentation graphics system.

## New products for PC 86

A variety of new PC products are scheduled for release at PC 86, which opens on March 15 at Sydney's Centrepont. Seventy-one exhibitors will be promoting their products and services on all four floors of the exhibition area, while the annual Australian Computer Society PC Conference will be in full swing at the Masonic Centre.

The new products are expected to include software innovations such as *Paradox* and

*Q&A*, hardware such as the 80286-based Apricot Xen and Hewlett-Packard Vectra, and PC accessories from Polaroid, Tallgrass Technologies, Canon and Epson.

The PC 86 Conference is staged by the NSW branch of the ACS and will feature Apple president John Sculley, Microsoft chairman Bill Gates and Attachedirector Gary Blom. The three-day conference costs \$450 per delegate.

or compatible. Once the images have been completed, sequenced, and stored on disk, the PC is no longer required, as the lightweight (7kg) VideoShow hardware can then display the images or 'slides' on its own.

The Macrovision technology used by VideoShow uses variable-sized groups of dots instead of pixels, increasing the shade and texture possibilities over standard PC graphics. The remote controller allows the user to step through images, build up pictures gradually, skip over or return to particular images, and position a pointer on the screen.

The *PictureIt* software offers a choice of up to 25 different bar, pie, line and word chart formats that can be combined or modified ad infinitum, along with 18 possible typefaces proportionally spaced. A variety of tech-

niques are available to 'dissolve' from one frame to the next, and picture building and pause features are also programmable.

Options available for VideoShow include Printmaker 130, which generates hard copy from VideoShow images in full color or black and white. This product currently supports Epson and IBM dot matrix printers, and the Tektronix, Canon, IBM and Quadjet color printers. Another option, Photomaker 150, is a 35mm video image recorder, similar in concept to the Polaroid Palette.

The VideoShow package with *PictureIt* software will sell in Australia for around \$9000, and a specially-designed Picture Pak library of standard graphic images is available separately for just under \$500, according to Dimension Graphics.



# New Apricot offers IBM compatibility

In its first major announcement for 1986, Barson Computers Australia released the powerful Apricot Xen, an 80286-based system offering IBM PC AT compatibility but operating up to 60 per cent faster than the AT. The \$8210 (excluding tax) Xen is the first new MS DOS system to be bundled with Microsoft Windows as well as MS DOS 3.1, and also includes *MS-Write*, *MS-Paint*, calculator, card file, clock, DEC VT100 terminal emulation and asynchronous communications utilities.

The Apricot Xen, powered by an 80286 CPU running at 7.5MHz, incorporates 1M of RAM (expandable to 5M), a 720K 3½ inch disk drive, 20M internal hard disk, parallel and serial ports, IBM PC ROM BIOS emulation and six proprietary expansion slots. Options for the Xen include an 80287 numeric coprocessor, an external AT-compatible expansion card unit, external PC-standard disk drive, mouse/trackball and Microsoft's Xenix operating system (which will allow support for up to 16 users). An optional modem/telephone handset will also be available as soon as Telecom approval is obtained.

Three new 30 centimetre



*The Apricot Xen, 60 per cent faster than the IBM PC/AT*

screens are available for the Xen, including a high resolution Euro-standard black-on-white 800 x 400 monochrome, a 640 x 200 color (four colors from a palette of 16) and an EGA-compatible 640 x 350 color display, offering 16 colors from a choice of 64. The Xen's enviable speed, power and aggressive pricing seem set to make it a force to reckon with

in 1986, which has been identified as a boom year for high-end PC sales in Australia.

Barson Computers, the Apricot distributor in Australia, has previously shunned any comparison of its 8086-based MS DOS systems, with the IBM PC standard. However, not surprisingly, at the Xen launch the inevitable comparisons were made and the

Xen's PC AT compatibility promoted, in recognition that the IBM standard has now become the industry standard. Future PC compatible releases are expected to be announced soon by Barson, which has endured considerable pressure from the market and its dealer network for a system closer to the mainstream of personal computing.

## Customised word processors

A program to enable Turbo Pascal users to build or customise their own editors or word processors has been released by Borland International.

It's called *Turbo Editor Toolbox*, and users can incorporate sample editors into their applications, customising them in any way; or they can build their own editor or word processor with special features, commands and menus to meet their specific application needs.

An existing Turbo Pascal user

can compile either of Turbo Editor's two sample editors and use them immediately.

One sample editor is called the Simple Editor and includes all the default editor commands and full windowing capabilities. The package also contains an adaptation of the *WordStar* word processor, *MicroStar*. The *Editor Toolbox* has 16 software modules and a layered design that allows access to streams of text at the character, word, line or window level. Any editor

designed with the Toolbox can be fully compatible with Borland's *SuperKey* or *SideKick*.

The windowing capability of Editor Toolbox enables users to view other files without leaving their current file, and Turbo Editor allows as many as eight windows to be viewed on the screen at the same time. By linking the windows, users can also view various parts of the same file without losing their place.

*Toolbox* is an extremely fast

editor because it can use as much RAM as it needs to hold text. The program also provides an 'undo' feature of restoring text that has been mistakenly deleted. Lines can easily be deleted in one window and restored in another window or filed. *Turbo Editor Toolbox* includes all cursor movement routines, as well as a variable type-ahead buffer. The *Toolbox* also provides full block manipulation.



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# Multitech MPF-PC



**T**he Multitech MPF-PC Popular 500 is available in single-floppy, dual-floppy and hard disk configurations (Systems 1, 2 and 3 respectively). This review covers only System 2, which is outselling the others, although DSE claims that all systems are selling in large numbers.

The MPF-PC System 1 is a minimal entry-level system, designed to reach buyers with a small budget but with good functionality and expandability. System 3 substitutes a 10M hard disk for the second floppy drive. Total memory is increased to the maximum of 512K. System 3 includes SoftFriend's *Aura* integrated package as well as free installation. The remaining spare slot is consumed by the hard disk controller.

The review unit was equipped with 256K of RAM and two Teac floppy disk drives. In common with Datamax's Mitac computer, the Multitech uses a system which avoids the use of the traditional large system board. Instead, a simple vertically-mounted back plane with four slots accommodates a CPU card, a multifunction card, and a color graphics card. The back plane handles the system bus and power supply requirements.

Since the back plane is vertical, the cards must be horizontal. The Toshiba T1500 does the same trick with the aim of lowering the height of the system unit. The Multitech is 120 mm high compared with the IBM PC's 142 mm. This saving means its

expandability is limited.

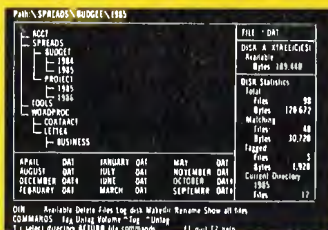
The CPU card provides all the functions normally found on the IBM PC system board. Apart from the 8088 CPU and associated clock circuits, the card carries the 8K ROM, keyboard circuitry and DMA logic. Surprisingly, it does not provide for adding an 8087 numeric coprocessor. Considering that the potential market for this machine is predominantly in small business, the lack of high speed floating-point facilities is not likely to worry too many buyers. The ROM BIOS is the popular ERSO version, developed in consultation with IBM and used by many Taiwanese PC compatibles.

Although there are no spare memory chip sockets on the CPU



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card, it is possible to increase the memory to 512K without using the final slot by substituting 256K chips for the 18 standard 64K chips.

The multifunction card provides five separate functions, basically floppy disk control, serial port, parallel port, games port and calendar clock. The FDI (Floppy Disk Interface) supports two 5¼ inch or 3½ inch drives. The asynchronous communications interface supplies both serial ports COM1 and COM2. COM1 is available on the rear of the card as a nine pin connector. The manual provides details about the pin connections and instructions for wiring up a 25 pin RS-232C connector. COM2 is available on the card as a 10-pin block header.

The parallel port is available as a standard 25-pin female connector at the rear of the card. The games port is brought out from the card to a back panel standard 16-pin connector. The battery-backed calendar clock is supported by utilities provided with MS DOS.

The color graphics card is similar to the IBM card but provides an additional B/W composite video signal. In the Australian system, the documentation states that the color composite signal is not available. The circuitry certainly seems to be on the card, so perhaps this is a reference to the incompatibility between NTSC

and PAL color standards. The card carries a 4-pin RF modulator connection and a 6-pin light pen header. The card was tested with a normal IBM RGB monitor with excellent results.

The real limitation is that there is only one spare slot for expansion. I understand that there are plans to release an expansion unit to increase this number. There is a male edge connector on the back plane which is clearly intended for extension purposes. In spite of its small size, there is plenty of room inside the system unit, which measures roughly 40 by 38 by 12 cm.

The keyboard is the only disappointment in this otherwise excellent machine. It has no LED indicators (apart from a power indicator) and the "feel" is poor. The unit is very light, and tends to move around the desk as it is used. The keys make an uncomfortable rattling sound, although there is reasonable touch. The layout is an improvement over the IBM keyboard, with large shift and enter keys. Another minor gripe is the lack of an external reset push button. This is a feature which seems to be missing on the latest batch of compatibles.

Two manuals are provided with the system. Both are paperback booklets. The Taiwanese reprint of Microsoft's *MS DOS User's Guide* is excellent. Multitech's *User's Guide* is comprehensive and contains a wealth of technical information. No information on BIOS interrupts is provided.

The Multitech appears to have a high level of compatibility. It ran the Microsoft *Flight Simulator* perfectly, as well as *WordStar 3.3*, *Lotus 1-2-3* and a variety of other packages. The price includes *MS DOS 2.11* and MicroPro's *Easy* word processor. *Easy* is just that — easy. It is fully menu-driven and, unlike its big brother *WordStar*, *Easy* makes no demands on your ability to remember control code sequences. For those new to computers it provides a gentle introduction. There is also a well-designed hands-on tutorial to

accompany the package.

The MPF-PC should be attractive to prospective buyers both for its excellent price and extensive support arrangements. It is being marketed in Australia and New Zealand exclusively by Dick Smith Electronics through its 60 outlets. It carries a six-month warranty which includes free on-site service in most major cities. After the six months, DSE provide a maintenance agreement from about \$200 a year. ■

## MULTITECH MPF-PC

### Australian distributor

Dick Smith Electronics Pty Ltd,  
396 Lane Cove Road,  
North Ryde 2113.  
Phone (02) 888-3200.

### Basic configuration (System 2)

Processor:	8088
Clock speed:	4.77MHz
Total RAM:	256K (512K maximum)
Ports:	1 Parallel 2 Serial 1 Games (joystick)
Video outputs:	RGB B/W composite
Disk drives:	5.25 in Teac
Operating system:	MS-DOS 2.11
Supplied software:	MS-DOS 2.11, Easy

### RRP (inc. tax):

System 1:		
128K, single floppy		\$1395
System 2:		
256K, dual floppy		\$1995
System 3: 512K, floppy		
+ 10M hard disk		\$3395
High resolution		
RGB monitor		\$649
Amber or green screen		
monitor		\$249

### Benchmark speeds (IBM PC = 10)

CPU-bound	9.6
Disk-bound	10.7

### Ratings (0-5)

Value for money:	4.8
Documentation:	3.5
Ease of use:	4.5
Appearance:	3.5
Vendor support:	5
Serviceability:	4.8

<b>Best points:</b>	Pricing, level of compatibility, maintainability.
<b>Worst points:</b>	Keyboard, limited expandability.



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John Berins M17







# Lifestyle software

Computer fitness packages are not games. They can mean the difference between fine-tuned fitness and the grave. Les Stein reports.

Computers are hazardous to your health. Stooped over a keyboard for hours you eventually turn into a crumpled mess with backache, neckache, eye-strain, repetitive strain injury or some yet-to-be-discovered fatal disorder. The frantic, addictive quality of the PC is bound to deter you from stepping into the light and exercising. It may even cause you to ignore the food you shove into your mouth, and end up like the Chicago programmer who had to go to hospital after chewing into the disk lying on top of his toasted cheese sandwich.

Are there really any PC users who exercise regularly and eat balanced meals? To many of these people, because of heavy pressures and a life dedicated to the mind rather than the body, fitness is as irrelevant as lion-taming. Sure, some of you are extremely fit, rarely drink or smoke and simply glow with vitality. Most of us, however, could do with a bit of fine tuning.

The *Original Boston Computer Diet* by Scarborough Software and the *James F. Fixx Running Program*

by MECA are not toy programs which are refugees from a failed home market. They are slick packages which encompass a large body of expert opinion on diet and physical fitness. The OBC Diet is written in Forth, and the Running program was put together in a combination of C and Assembler. Both are designed to systematically slow down the trip from heap to heaven.

## Efficacy

Dr. Orlick, distinguished New York cardiologist and fitness expert, says you are not likely to lose weight simply because you have run to the store and lightened your wallet for either of these programs. Dieting and fitness are a matter of common sense, he says. Too many sticky buns stick to the ribs, and a weekend at the footy does not increase your oxygen capacity, (unless you screamed through the whole match). If you want to diet then embrace moderation and if you want to exercise — get off your chair.

Behavior modification experts would disagree and argue that you

can control behavior by rewards and punishment — like Pavlov's dog. They believe that common sense is often smothered in a sea of bad habits. Both a low calorie carrot on a stick and a cattle prod must be used together to coax you out of your ways and into an enlightened frame of mind.

My first chore was to convince myself that the unhealthy computer environment could be my vehicle for success. Both programs are similar to home accounting packages and rely on you for daily input of every morsel of bread and every run around the park. The dedicated attention to detail seemed out of proportion to the place most of us are prepared to give to exercise and diet.

After an initial intrigue and flirtation with these programs, my interest went the way of most good intentions, and I soon forgot that they were there. (Maybe if I had paid for them it might have been different.) If you spend a good part of your day thinking about your running training or worrying over your calorie count, then these programs may give you an



edge on your health plan. If, like me, your motivation shifts about like a blade of grass on a hilltop, then neither program will help. No matter what their benefit, both require too much commitment, perseverance and perspiration to have a significant impact on a busy computer user.

### The Computer Diet

The *Original Boston Computer Diet* was devised by a group of Harvard doctors, psychiatrists and nutritionists. The diet is based on a slow and steady change in eating habits to reflect a more balanced food intake with fewer calories and increased exercise.

You are offered a choice of computerised nutritional counsellors, Amy, George and Shirley. Amy promises not to hurt your feelings, George is a little on the stern side and Shirley is "free-wheeling and breezy." Shirley sounded best for me — although Gestapo George may be necessary if you are a guilty eater.

You are asked to make an appointment with your counsellor. At the end of each session, a new appointment is made for a specific time on the next day. This is a clever inducement to get you to return, and you are duly admonished if you are late.

Basic information as to your age, height, weight and frame size is

collected in the first session. From these vital statistics, the program estimates how much you need to lose. Then follows a series of medical risk questions (high blood pressure, diabetes) and inquiries to ascertain your eating patterns, such as how many times a day do you eat certain foods, do you eat between meals, what is your mood when eating and in what room do you sneak your snacks.

When I started up the program on the second day, my counsellor Shirley greeted me with "Hot diggidy dog. It's Les again. Good to see ya, kid!" Each day she assigned some reading from the manual which is full of dieting homilies such as 'avoid fried food' and 'adjust your bathroom scale to zero before weighing yourself'. Although the style and readings are cleverly integrated with the program to give the user a comprehensive understanding of how to shed some weight, there were too many inane hiccups for me to give it full weight as a serious undertaking.

After the third day you begin the recording of every bit of food that passed your lips. The reporting screen is reasonably easy to operate. The program contains a huge database of foods and their calorie content. First you specify which meal of the day you are recording, the time and your mood while eating. Next you select from the database which foods you ate at that meal. The database is searched by entering all or part of the food name.

In one session I cheated and under-recorded my food intake. (Just an experiment!) I was warned that I was not eating enough and was shown an animated graphic of a man struggling up a hill. A series of graphs then vividly displayed how I had strayed. Effort in using the program will reward you with some interesting and humorous feedback.

Based on your eating habits, moods and goals, the *Computer Diet* will plan your future meals. The plans do not take account of what is in the cupboard nor is there an easy method to analyse substitutions. The planned meals tended to be on the boring side

and were full of horrors such as Bran Flakes for breakfast.

I had decided to give the program three weeks, which is the minimum any reviewer owes for a fair assessment. After a week and a half I became so obsessed with remembering everything I ate that food was on my mind more than it should have been. As action follows thoughts, I found myself drifting towards the fridge more often. Now this may be a perverse use of the program but the *Computer Diet* soon became dangerous to my health.

If you stick to the program you will definitely lose weight. I fear that if you are obsessive enough to record every sultana and pat of butter, you will need more than a computer program to dig you out of fat deposits.

### The Running Program

The *James F. Fixx Running Program* was devised by the late Fixx and Micro Education Corporation of America, known also for Andrew Tobias' *Managing Your Money*. Fixx was the author of classic running books, such as *The Complete Book of Running*. He died last year (while running). Apparently, he had a dreadful family history of heart problems and it has been said that he became a runner to fight this history and add years to his life.

The jogging craze appears to have slackened off in Australia and has been replaced by aerobics. There is no question that both sports increase your heart and lung capacity and are likely to give you some extra days on the planet. There have been some recent articles which suggest that walking vigorously is preferable to the pounding and exhaustion of running and aerobics but this type of conclusion has always seemed more a matter of medical fashion than science.

The program can start the unfit on a running program or can help train the marathon expert. The manual is on the disk in the form of help screens and an introductory text. The program is divided up into seven





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chapters. It requires a confusing number of disk changes to move from chapter to chapter, although it does have good error trapping so you are not likely to get lost. The user interface is poor at times, and a series of stretching exercises can be accessed

only by first rebooting and pressing Control-Break to terminate a batch job.

After reading the first chapter "Off and Running", you take a few tests to assess your level of fitness. The fairly gruelling exercises analyse your pulse rate which is then compared to your resting pulse. Sections on "Heart Attack Risk" and "Lifestyle Survey" conspire to make this initial section fairly depressing. They did not induce me to bolt onto the streets at breakneck speed but rather to get into bed with the blanket over my head.

Based on your level of fitness and your running goals, the program suggests a training program. At the heart of The Running Program is a form for the recording of the statistics of every run. A section called "How you measure up" then evaluates your plans with results. Charts and graphs show you what you probably already know. No complex calculations or surprising inferences — you are

running according to the plan or not.

Two final chapters called "Nutritional Advice and Tips" and "Nuts and Bolts" offer rather thin advice on diet, training and equipment. This is the kind of puerile material that associates this type of program with the useless home software market.

#### Worth springing for?

If you assigned an hour a day to an anti-flab plan, walked around the block or chased the kids, said no once in a while to a fudge-covered chocolate mousse and stayed away from the mirror, you have no need for either program. If you must possess any new gimmick and can accept that sooner or later it will wind up on the shelf, or you have a weird fanatical streak that keeps you healthy (although mentally bizarre), give either program a try. The worst that can happen is you will feel and look better. ■

## Making money for fun and profit

Armchair athletes who are within running distance of a casino may be interested in this gem. All casino games (with the exception of blackjack) offer a fifty-fifty chance on a single play. With roulette your chance of winning is the same each turn of the wheel. Blackjack or 'Twenty-One' offers you a chance to beat the house if you understand its rules and are prepared to put in a little effort. This program trains you in professional blackjack play — it is not a game or diversion, but a ticket to highly skilled money-making.

The idea of blackjack is for the player to obtain a total — up to but not exceeding 21 (which is greater than the total held by the dealer). Picture cards have the value of 10 and an ace can be either one or 11. A "blackjack" is a picture and an ace combined.

The game is circumscribed by certain defined rules.

- ☐ The dealer must draw a card when his or her total is 16 or under;
- ☐ A pair can be split and played separately;
- ☐ A bet can be doubled after the first two cards in return for accepting just one more. All of these combine to give the player who understands how to play an edge over the house.

Millions of test hands have revealed what is the appropriate move to make for each situation. The statistics generated combine to form a "basic strategy" which must be understood by every player who takes an intelligent approach to the game. The program teaches these by an excellent manual, a series of drills and actual simulated play at a blackjack table.

The chance of winning depends on what cards are yet to be dealt. If a player knows that there is a good chance of a 10 coming, a higher bet could be in order. Ken Uston's Professional Blackjack Program

teaches and trains you in basic card-counting techniques and the very sophisticated methods used by the big boys.

You can practice with US casino rules, or you can set up a casino to reflect the rules in Australia. The program evaluates and monitors every play and after a few weeks of study you are ready to quit your job and spend your days playing blackjack in the Caribbean, Monte Carlo, Las Vegas, and perhaps even Tasmania.

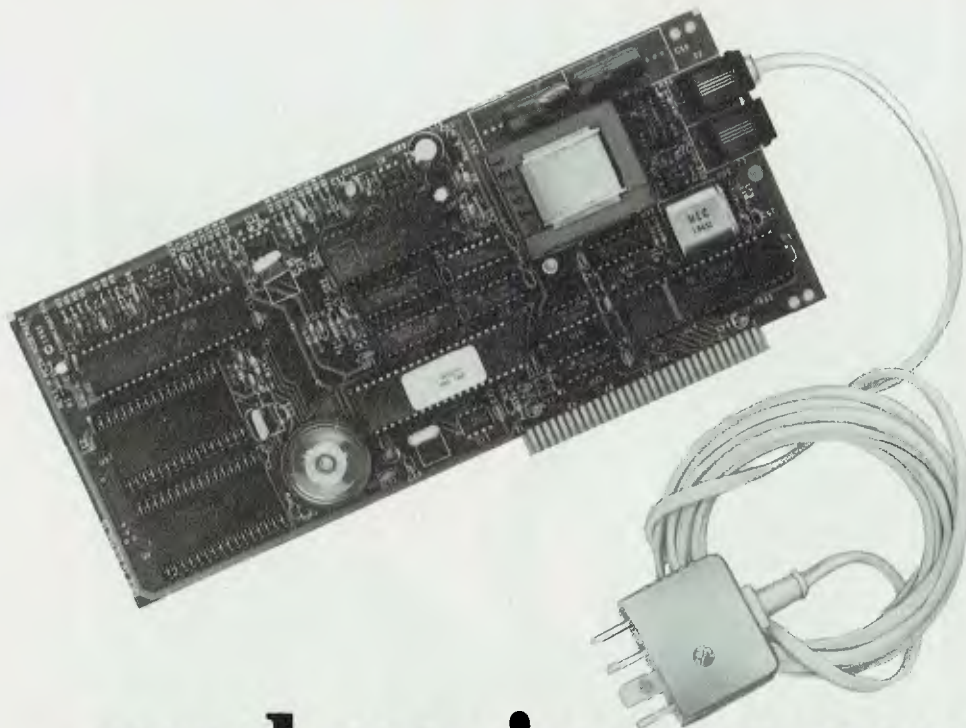
This is a flawless piece of programming that is sold through a variety of US mail-order houses. All I want is 20 per cent of your winnings for telling you about it.

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Both units combine the multi-chip technologies needed to provide everyday low-speed operation with the super-fast requirements of major business demands. As such, they can access bulletin boards operating at 300 baud, Videotex services such as Telecom's Viatel at 1200/75 baud, as well as Packet Switching Networks including OTC's Midas and Telecom's Austpac at 1200 baud full duplex. In addition, the 2400 baud full duplex facility will enable high-speed, point-to-point file transfer, and access to data bases that will soon be upgrading to the new V22bis facility. 'AT' industry standard Auto-Dial, Auto-Answer and Auto-Disconnect facility is standard.

Both Modems offer the potential for significant reductions in telephone charges. They can be driven by nearly all communications packages, and connection is directly to a standard telephone socket. So now you have a choice in selecting from the two smartest modems on the market: the NetComm SmartModem 1234 or the new 1234 In/Modem.

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# Disk drive maintenance

Henry Beechold explains how to look after your disk drives —  
cutting down on repair bills and lost time

**C**he major cause of computer downtime is disk drive failure. Every user at some point will go to boot up a disk and get a data error, seek error, or some other such annoying message in return.

But before getting into the causes of disk drive failure, take a look at a typical disk drive, the full-height Tandon TM 100 that probably came

with your PC.

Any disk drive is a hybrid device: part electro-mechanical and part electronic. The major mechanical components of a disk drive are the chassis, door mechanism, hub, drive motor, spindle, head-positioning motor and head assembly, logic board, and servo board. (*Figures 1 and 2.*) In the TM 100, the logic board

and the servo board are separate, though in some makes, the servo circuitry is included on the logic board.

The chassis is mainly a casing to hold the various parts and assemblies. Although it has been demonstrated that uneven torquing of the mounting screws can deform the chassis enough to throw a head temporarily out of



alignment, this rare occurrence primarily affects quad density (80-track-per-inch or 96-track-per-inch) drives.

The black plastic part of the drive holds the door assembly and the disk-retaining hub to which the door is attached. It is very unlikely that the doorlatch will malfunction, although the hub can be gummed up through the use of do-it-yourself disk-hub-ring kits. A disk has a limited life, after all, and should be backed up long before the hub hole needs whatever reinforcement a hub ring presumably provides.

Delving deeper into the disk drive, you finally come to the heart of the matter, the machinery. To start, take a look at the drive motor and spindle. (Figure 3.) The drive motor, one of two motors in a disk drive, causes the spindle to turn and in turn causes the disk itself to turn. The spindle is fitted with a hub on which the large centre hole of the disk is positioned. When you close the disk drive, the disk is pressed into position by a hub clamp.

Four major problems are commonly associated with the drive motor and spindle: motor burnout, motor-bearing wear, drive-belt failure, and incorrect spin rate.

Occasionally, the spindle bearing acts up, causing the spindle to bind. If spin-rate deviation is caused by an electronic problem, it can probably be corrected by tweaking the servo pot, a

variable resistor known in the Tandon TM 100 as R4. If the motor is failing, however, tweaking will only provide fleeting relief. A slipping drive belt will also cause irregularities in spin rate and, of course, a broken belt puts the spin rate at a rock-solid zero.

The head-positioning motor quickly and accurately steps the head(s) back and forth over the read/write slot of the disk. The grinding or buzzing sounds emitted when the disk drive is active are made by the head stepper at work. The primary cause of failure here is misalignment of the head(s) resulting from rough handling of the disk drive, wear, or heat.

Tandon drives get warm in the best of circumstances. Should the computer be operating in a particularly stuffy environment, therefore, don't be surprised if the drives become erratic. Don't try to fix anything yourself. Head alignment should be done by a professional who has the proper tools.

The task of the computer is to obey the commands that come through DOS. The practical implementation of those commands, however, is carried out by the floppy disk controller board (FDCB) in conjunction with the logic board — the circuitry on the disk drive itself. (Figure 4.) The FDCB, referred to by IBM as the Diskette Adapter Board, is installed in one of your computer's expansion slots. The FDCB can be the source of disk drive misbehavior, but the only practical way to ascertain its state of health is to substitute a controller board you know is good. Servicing a floppy disk controller board is not a job for just anyone.

**Warning:** Before handling any plug-in boards, discharge any static charge you have (static electricity kills electronic components!) Then place the loose board, circuitry side down, on a piece of aluminium foil.

If you tell the computer to read a file, appropriate signals, sent first to the FDC and then to the disk drive logic board, cause the disk drive motor to turn on, load the read/write head, and move the head stepper back and forth across the surface of the

disk. Considering the amount of carefully co-ordinated electronic and electro-mechanical activity going on, this system works remarkably well. Still, mishaps occur — some IC or other will get flaky, or a capacitor or transistor will open or short out and unfortunately, these repairs, too, must be sent out. Before packing anything up, though, try swapping boards. At least in the case of the FDCB, it's an easy enough task and may quickly root out the culprit.

Swapping circuit boards is also a good idea if there are problems with the servo board. If that doesn't work, you can try adjusting the spin rate with the spindle-speed-adjustment control (R4 on Tandon's TM 100) mentioned earlier.

Tandon's TM 100 manual does a good job of detailing all these problems and more. The manual organises the disk drive activity into seven functional groups and lists malfunctions associated with each grouping. These include:

1. Index-pulse shaper, consisting of an LED, a phototransistor, and pulse-shaping circuitry. The pulse shaper turns the interruptions of light caused by the disk's index hole passing over the LED into a standard digital data stream. LEDs burn out and phototransistors fail — both problems are jobs for the professional.

2. Write-protect sensor, which senses when the write-protect notch on the disk is covered, closes a microswitch, and causes inhibition of the write function.

3. Track 00 sensor. The track 00 position is home base for the head stepper. If the drive is out of alignment, it can't read track 00 of the disk and will crash.

4. Spindle-drive control, which I have already discussed.

5. Carriage-position control.

6. Write/erase control.

7. Read amplifier and digitiser.

These groupings comprise the major part of the logic board electronics.

Floppy disk drives are either single or double sided. A single-sided disk drive has only one read/write head. When used in the single-density mode,



this drive is the most reliable type. Double-sided disk drives have two heads, the second of which is located where the single-sided drive has a simple pressure pad. Dual-headed drives are more susceptible to misalignment than single-headed drives, especially in double- and quadruple-density modes. The older IBMs have single-sided drives (writing double density), whereas the newer computers come with double-sided drives (also double density). The recording density is under the control of the FDC board, meaning that any disk drive can be made to read and write double-density information. Extended densities can also be squeezed out of these drives.

However, where quad density will be used consistently, designers generally specify 80-track (96 tracks per inch) instead of the "normal" 40-track (48 tpi) drives. Bear in mind, though, that an 80-track width is so narrow that even the slightest deviation from spec will throw the system into a tizzy.

The FDC board talks to the disk drives over a standard 34-conductor cable. Once in a while, a disk drive problem can be ascribed to a defective cable or connector.

The process of formatting a disk on computer is very similar to making a standard tape recording. The information that the drive records is digital, however, meaning that there is a magnetic pattern understood by the

system as 1s and 0s, as opposed to the analog information recorded in the magnetic material of recording tape. The formatting procedure works by setting up a set of digital pigeon holes that the operating system uses for storing and retrieving your files. Since files are recorded in little packages not necessarily contiguous with one another, formatting also provides pointers or "road signs" to help the operating system keep everything organised.

Disk drives are partially mechanical devices, and, like living rooms, they accumulate dirt and dust and must be maintained on a regular schedule. Several tools and materials are needed to perform this "disk-keeping" task.

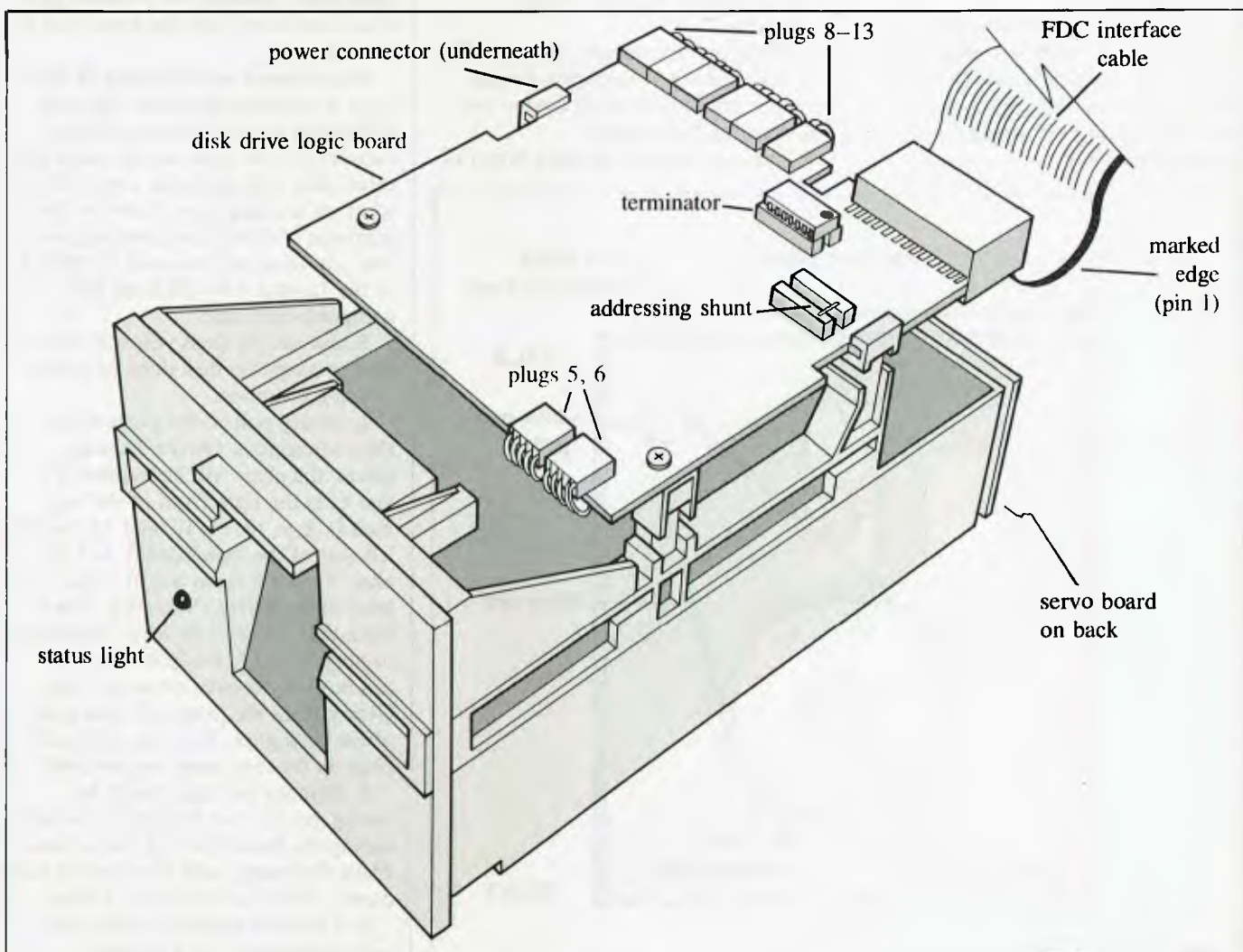


Figure 1: Overview of Tandon TM 100 disk-drive interior.

## DISK DRIVES



They include:

- Vacuum cleaner, battery-operated, flashlight-sized, with soft utility brush. When you vacuum, place the cleaner itself as far from the equipment as possible and aim the exhaust in the opposite direction.

- Compressed air. This is available at the photo shop in an aerosol can. Radio Shack calls it Dust/Particle Remover. Animal hairs and little bits of stuff seem to be more easily dislodged by a blast of air than they are by suction. Use the plastic nozzle that is provided, and while you blast away, suck the flying debris up with the vacuum cleaner.
- Isopropyl alcohol, uncolored type. Ethyl alcohol will do just as well, as will tape-head cleaner.
- Cleaner/degreaser. For cleaning connector contacts.
- High-quality lubricant.
- Swabs. When I go on a cleaning binge, I find that cotton swabs answer my needs very nicely.
- Pink eraser. For burnishing contacts.
- Miniature screwdriver, large needle, or polished wood toothpick (round cross section, with sharp tips) — for lubricating tight spaces.
- Technical manual for your brand of

disk drive. This isn't an absolute necessity, but for routine maintenance, it's nice to know what you're playing around with.

And, of course, you'll need your regular tools, such as dentist's mirror, tweezers, small screwdrivers, and vicegrips for disassembly and assembly of equipment.

Disk drive maintenance should be performed every 100 hours of use or every six months, whichever comes first.

**Warning:** On dual-sided drives, closing the drive door without inserting a disk (or thin piece of cardboard cut like a disk) can damage one or both of the heads. This kind of damage is not a problem with single-sided drives because the pressure pad is soft and won't hurt the head even if it touches it.

Maintenance on any brand of disk drive is basically the same. The only differences are the location of some connectors and some screws and a few other odds and ends that won't affect what we're doing here. However, for purposes of illustration, assume here that you have just removed the drives of the Tandon TM 100 from the computer enclosure.

Below are the steps you will want to take to keep that disk drive in perfect running condition.

1. Gently pull all the plugs from their connectors. On the Tandon drives, the plugs will be numbered 5 and 6 (to the right front of the logic board), 8, 9, 10, 11, 12, and 13 (to the left rear of the logic board), and 20 and 21 (on the servo board at the back of the drive). (**Warning:** Don't yank these plugs. The wires, especially to plugs 5 and 6, are quite fine and can be easily broken or pulled loose. Gently work the plugs off. And note where each goes. The four rightmost plugs in the rear bank are not used).

2. Remove the logic board by taking out the two Phillips screws and sliding the board back to the cut-out. Place the board, with the circuitry side down, on foil or conductive foam.

3. Clean the interior of the drive with compressed air. Use small, precisely aimed blasts. Be careful not

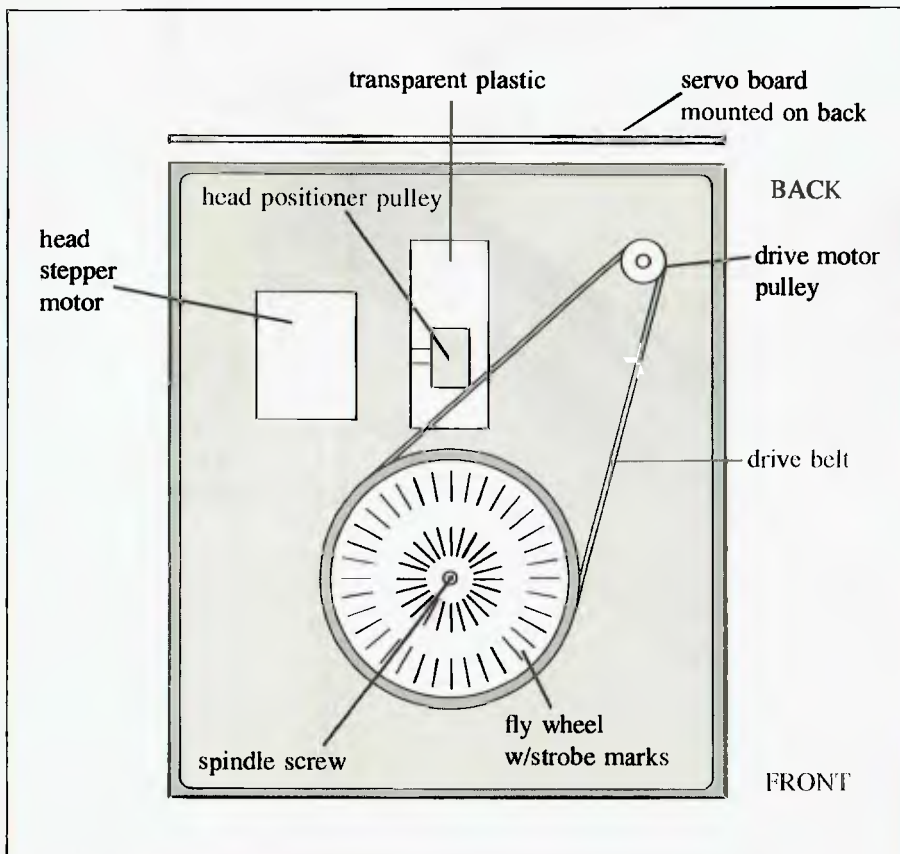


Figure 2: Underside view of disk-drive interior.



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to touch the heads with the nozzle.

4. Check the condition of the drive belt. If it slips easily or shows wear, replace it. Turn the flywheel (the wheel with the strobe pattern) to test for smooth movement. If there seems to be any binding, the drive motor

may be failing, the drive motor may need lubrication, and/or the spindle bearing may need lubrication.

5. Lubricate the drive motor. First remove the plastic cap on the top of the motor and put a drop of lubricant on the bearing point in the centre. Next, turn the drive over and with a miniature screwdriver, a large needle, or even a toothpick, put a drop of lubricant on the drive shaft in that tight space between the pulley and the body of the motor. It's important that this drop work its way down the shaft to the bearing. When you've finished, rotate the spindle to work the lubricant in and replace the plastic cap. Note: WD-40 has a limited lifespan on the job. For longer-term oiling, use TriFlow or fine machine oil.

6. Lubricate the spindle. The only semi-handly place to lubricate the spindle is beneath the hub on the top side of the drive. Using a miniature screwdriver (or needle or toothpick), dribble in a drop or two of lubricant.

Take great care not to touch the heads or to bend anything. Next, rotate the spindle to work in the lubricant.

7. Lubricate the head stepper. Once again, you must apply the lubricant with a fine tool to the space where the motor shaft of the stepper motor enters the body. You can get at this juncture from the top of the drive. Slide the head carriage gently back and forth a few times to work the lubricant in. (Warning: When moving the head carriage, grasp it by the plastic guide at the right front of the assembly. *Do not handle the top head assembly*).

8. Clean the heads and carriage. Lightly dampen a swab with tape-head cleaner or isopropyl alcohol; then, with a gentle circular motion, swab the bottom head and then the top head. Repeat this action with a second and even a third swab. To clean the top head, place the swab on the bottom head and press upward. The swab should eventually come away clean. Don't allow alcohol to dribble around the head mountings. The carriage rails can be cleaned by swabbing them with a small amount of cleaner/degreaser and then sliding the carriage assembly back and forth. (Note: I do not recommend using disk-type head cleaners. These can cause premature head wear).

9. Lubricate the carriage rails. You should put a drop or two of the lubricant on a swab and brush it onto each of the two rails, then move the carriage assembly back and forth a couple of times. You want to leave only a very thin film of lubricant behind.

10. Lubricate the door assembly. Rub the swab you just used on the two flanges inside the door handle. Don't add any lubricant. All you need here is the lightest film.

11. Clean the connectors. Moisten a clean piece of cloth with cleaner/degreaser and rub the pin connectors on the servo board until they are bright and shiny. Repeat for the pin connectors on the logic board. Pencil erase the flat finger connectors (right rear of board) to remove static electricity and then clean off with

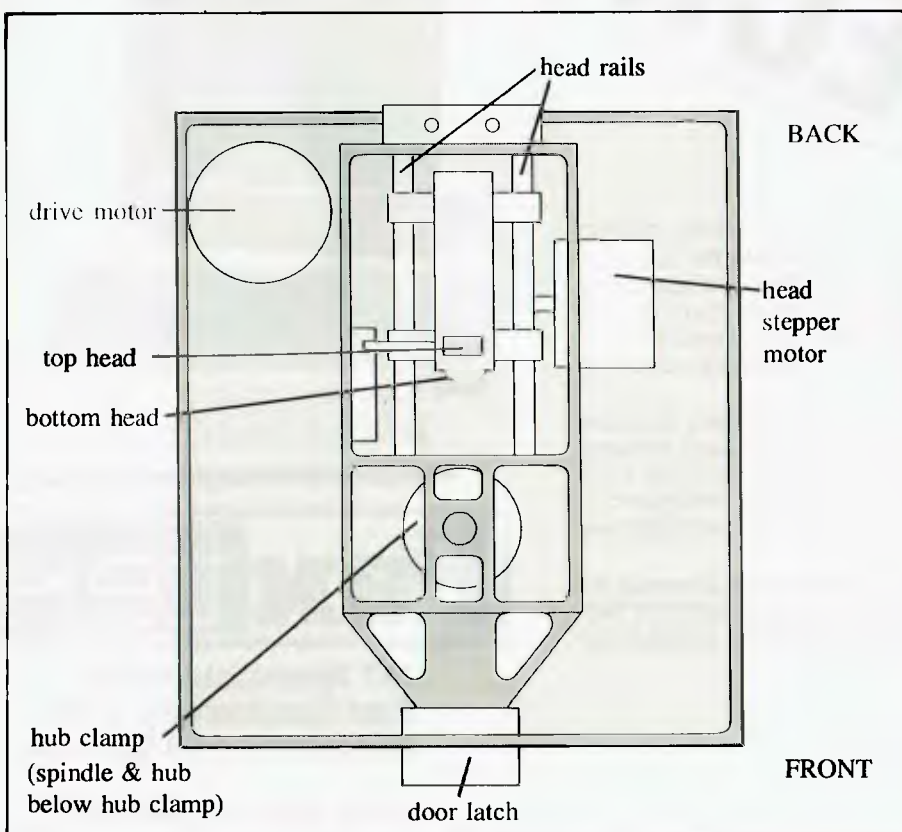


Figure 3: Overview of disk-drive interior with logic board removed.



cleaner/degreaser. Blow the board clean and dry with compressed air.

12. Replug the servo-board connectors.

13. Replace the logic board and replug the connectors.

14. Two-drive users should go back to step one.

15. Replace the drive(s), the power plug, and the disk-drive cable. The power cable can be inserted only one way, but an unkeyed disk-drive connector can be misconnected. Pin 1, whose cable is marked by a colored stripe, should be to the right as you face the front of the drive.

16. Reassemble your computer, and fire it up for testing. All should be well. If not, open it up and check the connectors for correct placement.

Unfortunately, even if you maintain your disk drive perfectly, there may be times when everything doesn't

function as expected. To prepare you for this eventuality, I recommend two documents: the *Technical Reference Manual* for your computer and the technical manual for your brand of disk drive. There is no sense in pawing around hoping to happen upon what the problem is. We need all the help we can get.

In certain cases, you're told to return the unit to your dealer for repair. And unless you intend to become your neighborhood disk-drive repair person, you're better off letting the specialists handle the sticky problems. Before trekking off to the computer store, however, first check the obvious. Here's a list of problems, possible causes, and remedies.

If the drive doesn't respond when you issue the boot command (the busy light doesn't come on):

- Your disk drive cable may not be

securely plugged into its socket.

- You may have a defective cable (one or more broken conductors). Replace it.

- The power-supply cable is not securely plugged into the power receptacle on the disk drive.

- You have problems on your FDC board and/or disk drive logic board. Substitute boards if possible; if not, send it for repair.

If your disk-busy light turns on when you give the boot command, but the disk will not boot:

- You have no system on the disk.

- The disk is defective.

- The spin rate is out of spec. Check and adjust it.

- The drive belt is broken or off the pulley. Replace it.

- The drive motor is binding. You must lubricate it.

- The head-stepper motor is binding.

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SANYO	: 775
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Clean and lubricate it.

- The drive motor and/or head-stepper motor has burned out. Send the drive for repair.
- You have a defective terminator.

Replace it. (Note: In a two-drive system, there should be only one terminator. Normally it is mounted on the drive that is at the end of the disk drive connecting cable, regardless of whether the drive has been designated A: or B:).

- The head is misaligned. Send the drive for repair.
- The head is dirty. Clean it.
- The head is defective. Send the drive for repair.
- The disk pressure pad is worn down (single-sided drives). Replace it or send drive for repair.
- There is a weak spring on the pressure-pad arm (single-sided drives). Replace it or send drive for repair.
- Your index sensor is burned out. Send the drive for repair.
- You have a faulty FDC board and/or disk drive logic board. Substitute if possible; if not, send the drive for repair.

• You have a defective system ROM. Substitute a working ROM. This problem is uncommon.

• You have a defective CPU, clock, bus controller, or other system board component. Troubleshoot, substituting chips where feasible. This problem is also uncommon.

If you get busy lights from two (or more) disk drives when you access the system:

- The disk drive cable is plugged in backwards. Remove it; then reconnect it, making sure that pin 1 on the cable connectors is properly mated with pin 1 of the FDC board and the disk-drive logic board.
- The disk drives are improperly addressed. Check the addressing shunts and re-address correctly.

If you have problems inserting or removing disks:

- The head is not relaxed from the read/write (loaded) position. Turn the system off and then on. Try to insert a scratch disk.
- The springs or catches are bent or broken. Turn off the system. Then open the disk drive, remove the logic board, and use a scratch disk to observe what's happening. Repair the problem if possible, or else send the drive for repair.
- The drive hub is gummed up with adhesive from hub rings. Carefully clean the hub with lint-free cloth moistened with lighter fluid.
- A write-protect or other label is stuck somewhere in the disk pathway. Remove it and carefully clean off the adhesive.

I have a few additional bits of advice that can save you money, time, and aggravation.

Where feasible, check several things at the same time. For example, you can easily check the drive motor, the cleanliness of the head(s), and the cleanliness of the head carriage rails at pretty much the same time. At any rate, on the basis of your best judgment, go first to the most likely source of the problem at hand.

Never use force on anything in a disk drive — with the exception of a frozen drive motor that you've just lubricated. Forcing here should be of

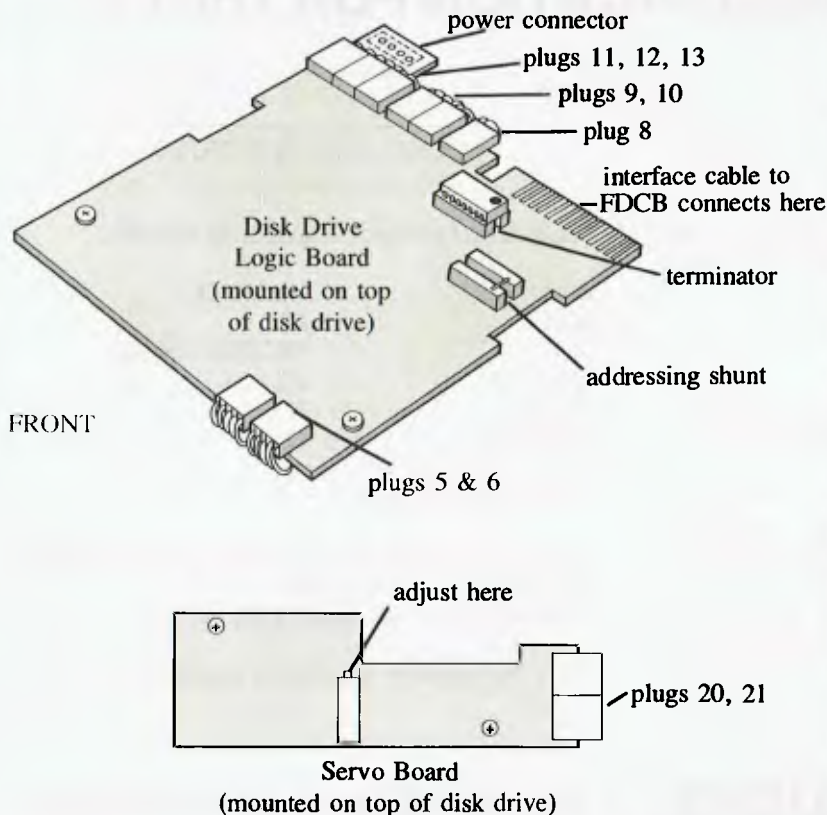


Figure 4: Overview of disk drive logic board and servo board.



a very gentle sort. Lubrication should be applied *sparingly* to the area where the motor shaft enters the motor housing and to the area where the shaft can be seen on the top of the motor housing. Do not allow lubricant to dribble anywhere else.

Replacement pressure pads, springs, and other little odds and ends can be ordered from companies that specialise in disk-drive sales and repair.

It's a good idea to comparison shop for disk-drive service. The dealer you bought your computer from may neither be the best place for service nor the least expensive. You can usually get worthwhile guidance from computer club or user group members.

Buy a spare disk drive — even two — so that you won't be out of business when your regular ones go on the blink. You can own a new replacement drive for the cost of two to three repair jobs, and do your own replacement. Working slowly, you can replace a drive in your PC in less than an hour.

Don't feel obligated to replace a disk drive with one of the same brand. You'll be paying a premium for the IBM logo, beneath which is another maker's disk drive. My recommendation is for the brushless, direct-drive type of drive available from mail-order. Just make sure that you get the correct size (full height or half height) and that the vendor assures you that the drive is PC compatible, which most are.

Don't leap in and try to do a job that you neither fully understand nor have the proper equipment to tackle.

A little time spent on mothering your disk drives will put you in good stead over the long haul. Use your expensive piece of productivity software to remind you when the drives should be taken care of and to keep a record of your ministrations — rather like the grease-and-oil-change sticker on the door frame of your car. Good luck and good driving! ■

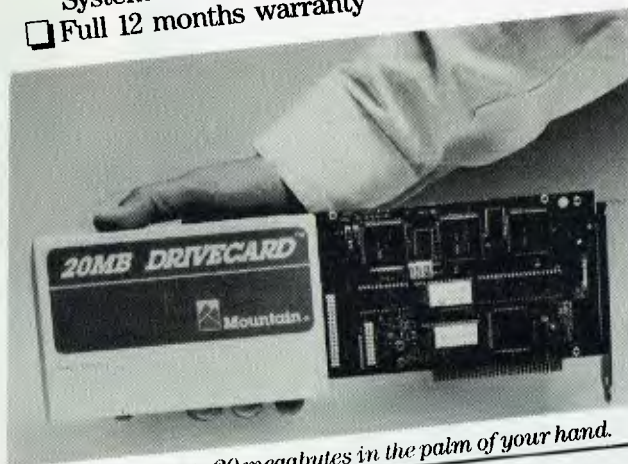
*Dr Henry Beechhold is a professor of English.*

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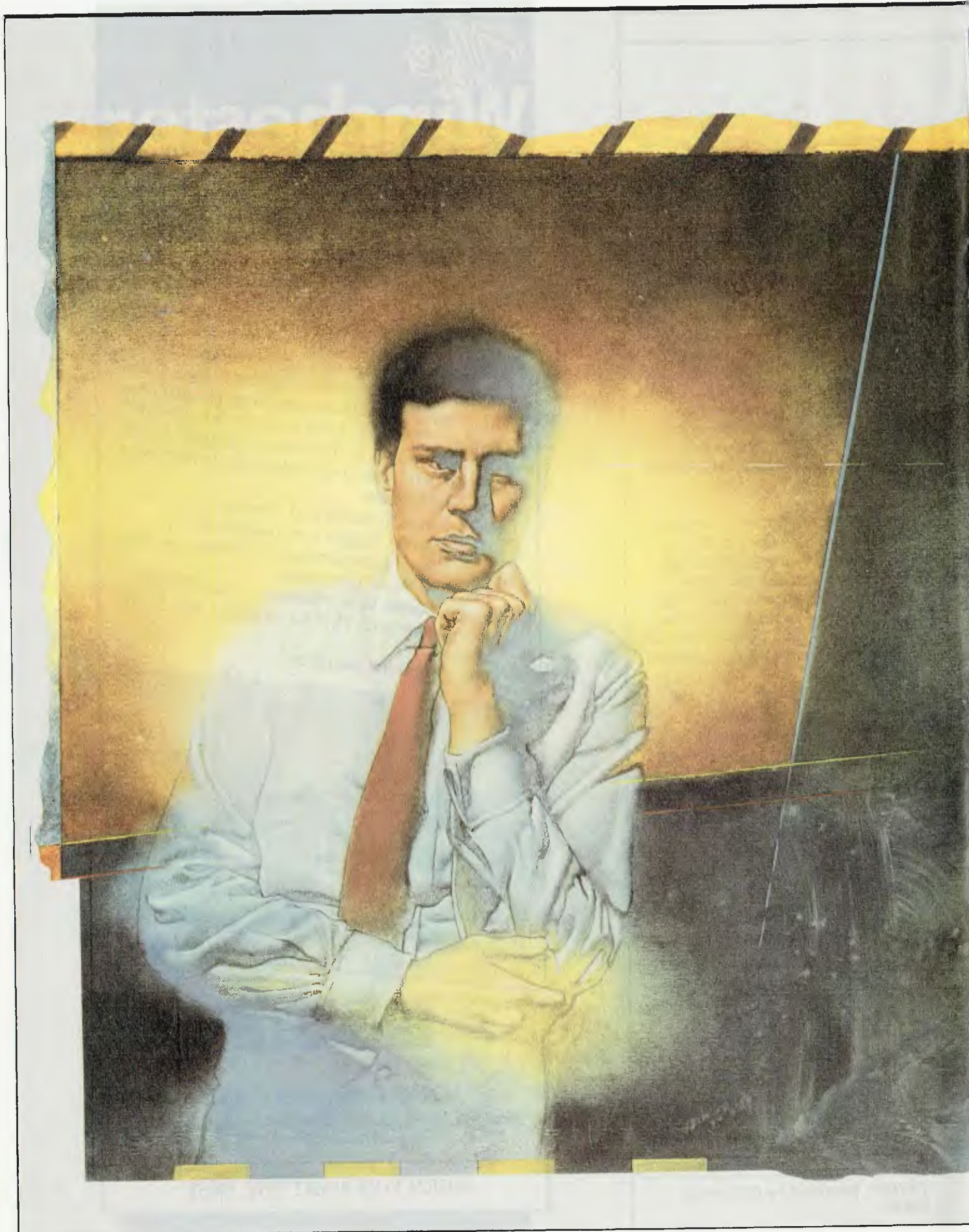
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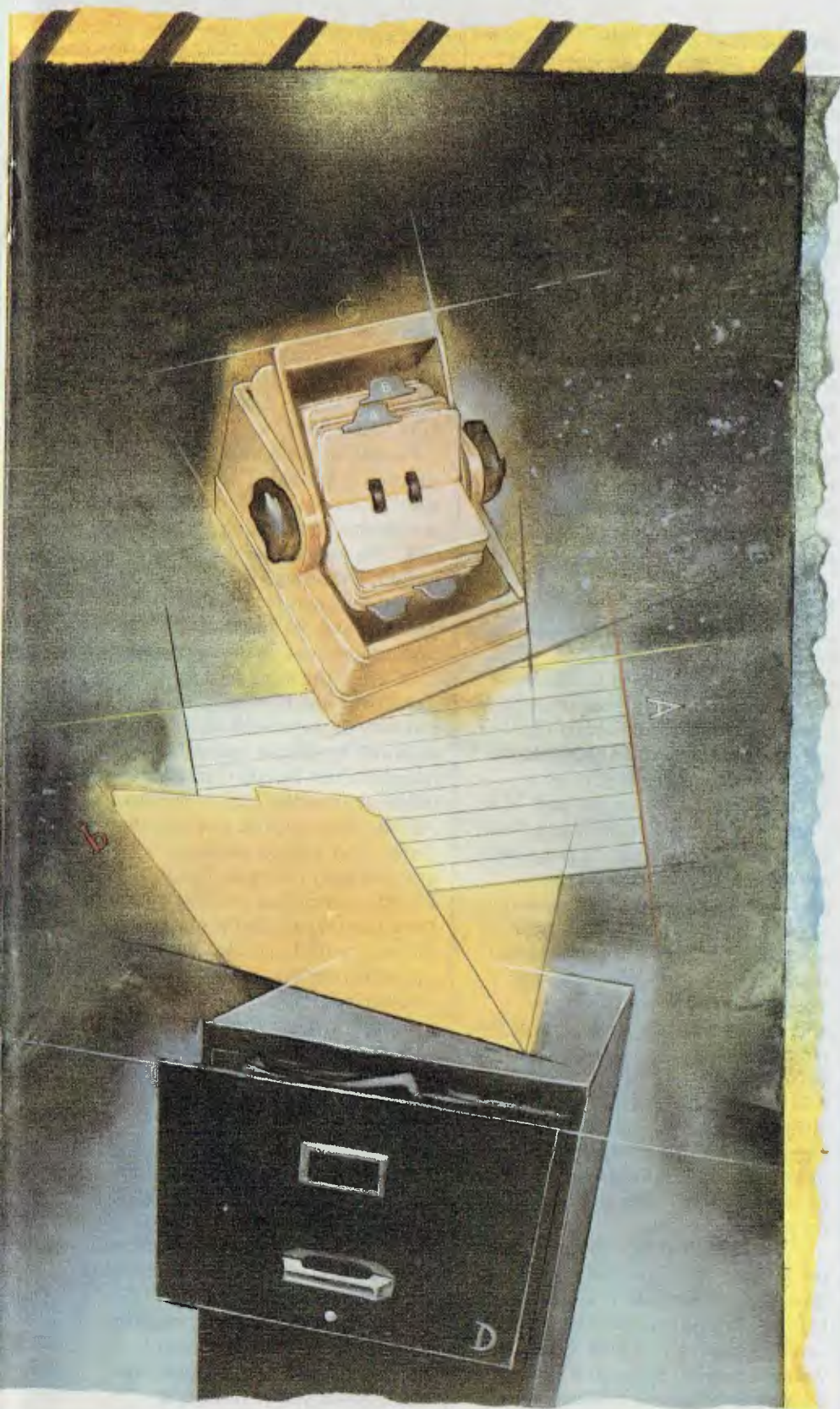
Tony Farrell

**I**f you're asked today what stage your project has reached, don't be too hard on yourself if you don't know the answer.

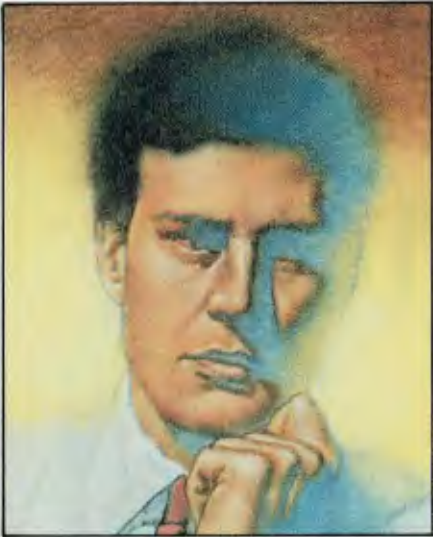
Staying on top of all the details of a complex project takes time but details are important. However, your PC stands ready to take over the drudgery involved in managing a complex project and software can help keep different tasks in order.

It takes over the jobs of keeping the lists of tasks and calculating all the dates and workloads, leaving you to see that the schedule is met.

These programs make project management easier, but they still don't make it easy. You must plan out the







different elements thoroughly and keep your expectations realistic. If you use the program to track performance against the schedule, you must take the time to enter the data as the project progresses. Like most computer applications, the savings come with the speed of the calculations and the ease of making revisions. Many of the packages reviewed below even let you save a typical project and then modify it for a specific set of circumstances.

*PC Australia* decided to take a look at some of the more popular, best-selling project management programs, presenting some of the highlights that set one product off from its competition, either for better or worse. They are in ascending order by list price, not necessarily in ascending order of value.

Keep in mind that not all programs are suited for the same kinds of projects and the right selection depends in large part on what you are trying to track.

To test each package, we first ran through the tutorial and the manual to become familiar with the program's approach to project management. We then entered a simple, 35-task project that simulates the opening of a branch store. We tried to use that first project as a template to create a second, similar project scheduled to start one month later and schedule the two projects side by side. We chose this

approach because we believe it is most similar to the way people would use the software; you develop a generic project that you can quickly call up and modify. From here, you enter new information and can quickly see what effect it has on workloads and deadlines. We looked at how well the program handled the sample task. How easy was data entry? Did the program have a way to "smooth" overextended tasks, or did we have to do that manually? How quickly and easily did the program respond to changes, and what charts and tables would it create? Could you get separate listings of tasks for individual resources, so that you could give project members a list of their tasks and deadlines? We also kept an eye out for special features that might set a program apart from the others.

### Microsoft Project

This is certainly one of the best bargains. While it is not as sophisticated as some of the others, it has the strength to do what must be done in most cases. You enter the tasks at the bottom of a Gantt chart display, and you can specify up to eight different resources per task. If a resource is over-extended for a given time period in the plan, the program will let you know. You may then choose the Autoschedule command, which will quickly "smooth" any resource and adjust the task schedule accordingly. *Project* goes one step further with resource tracking by offering a report that prints a page for each resource category, listing the different tasks and their scheduled start and end dates. This is a handy format because you can hand the pages out to the individuals responsible for each resource and it spells out all they need to know about the project schedule.

You are limited to a mere 128 tasks per project, so you should not choose this program for your next interstate highway bridge project. You can incorporate other projects as tasks within a project, but each is treated as a single task, and no information is carried over about the resource

requirements. On the other hand, if you are dealing with projects that have similar, repetitive tasks, you can create a template plan and re-use it as often as you need.

Not surprisingly, *Project* comes with all the Microsoft earmarks we have grown to expect, from its clear plastic slipcase that doubles as a bookstand to the *Multiplan* menu structure. As with the other Microsoft products, you use the Tab key or Space bar to highlight menu options and the Tab key to move within fields on option screens. It even supports the Microsoft Mouse if you are suffering from "Mac-Envy".

The manual and tutorial are clear and well organised. The tutorial is a series of lessons in the manual that use sample files included on the program disk. The manual has a reference section, a thorough index, and some helpful information about project planning and the accounting conventions used in the calculations.

A few of the other nice features include the ability to sort the tasks in a variety of ways, such as by critical path and by start or end date. We found the sort by late start date to be the most attractive and useful feature. Another nice surprise was that the Gantt chart printed sideways automatically (using an Epson FX-85), rather than creating a two- or three-page report that is much more difficult to read and use. It also has numerous options for exporting data to other programs.

*Project* is not without its shortcomings. It has no network diagram. It cannot accept tasks that last for fractional time periods or resource requirements to the hundredth of a unit (it does accept tenths). It does not track projects through various stages of partial completion; you would have to modify the plan to reflect the current situation and would lose the details of the original schedule.

Like most of the other programs reviewed here, *Project* is copy protected. It does have a procedure that permits you to install the program on a hard disk and run it



without the floppy key disk.

Unfortunately, there is no procedure to take it off your hard disk when you want. If your hard disk should fail, you have lost your installed version. True, you can then revert to using the key disk, but that seems to be an unnecessary hassle.

Overall, *Project* is a great place to start. It isn't as powerful as some of the competition, but then again, it may be all that you need. It is available at a price that lets you get involved in serious project management at a low cost, without risking too much in case it turns out that project management is not for you.

#### **Computer Associates' Super-Project**

Computers Associates' Micro Products Division is the new name for Sorcim/IUS, a company that is well known for its *Super* family of products, including *SuperCalc3*. *SuperProject* is its standard bearer in the project manager market.

Unlike most of the programs we reviewed, with *SuperProject* you define a project by placing tasks on a network chart instead of filling in a table or a Gantt chart. You create a task and specify its duration and required resource, and then you define the links between the different tasks. Note that you can only specify one resource per task on the network display; this is the "lead resource", but you may specify as many secondary resources as you wish on a separate table.

*SuperProject*'s functions can be accessed in either of two ways. The first causes pull-down sub-menus to appear from the top-row commands on the screen. Select the appropriate choice, and the command is executed. You can also bypass the menu process entirely, using function keys and Ctrl or Alt key combinations.

After you have defined your tasks, you can adjust the layout by moving them around the screen, either singly or in groups. *SuperProject* calculates the critical path based on the links you establish, and you can view it on either the network or Gantt displays.

While it is nice to have the artistic control of being able to place the tasks where you wish, this undertaking is time-consuming. Some of the automatic drawing routines of the other programs do a better job of placing the tasks.

One of the nicest aspects of this program is the high level of customisation built into the system. There is an entire screenful of "preference" settings, covering everything from the type of monitor and the units of time measurement to the timing of the automatic save feature that saves your work to disk at fixed time intervals while you are working.

Computer Associates gives you more than the traditional tutorial in the manual (14 lessons), which covers nearly every aspect of the *SuperProject* program. For the more adventurous or those with more experience with project management software, there's the "10 Minutes to *SuperProject*" booklet. This is a 22-page pamphlet that exposes you to the program's basic operations to get you off to a fast start.

The program deserves special mention because it is one of the two packages reviewed here that is *not* copy protected. There's no key disk, no special installation procedures — just copy the files and go.

The package includes the printer utility, *Sideways*, which permits you to print tables and graphics running down the long dimension of the page, thus creating tables that are two or more times wider than standard printing can produce. While this appears to be a bonus, it has a major shortcoming. You must create your report with *SuperProject* and save it to disk, then leave the program, call up *Sideways*, and then (finally) print the report. You must return to the original program to continue work. To top it off, you must tell both *Sideways* and *SuperProject* about your printer in separate configuration procedures. If they are going to package the programs together, the least they could do is make them work together a little.

*SuperProject* has high capabilities in most areas, but in the case of resources, this is of less use than with other programs. It cannot automatically smooth resource conflicts caused by overscheduling a given resource. It will notify you when such a conflict exists, but you must adjust the start dates of the tasks involved by hand. You can also bring in a second project as required by our test sample, but you need to do a fair amount of editing and adjusting before you can schedule the two projects side by side. Without automatic resource levelling, there is not all that much point in combining the two projects anyway.

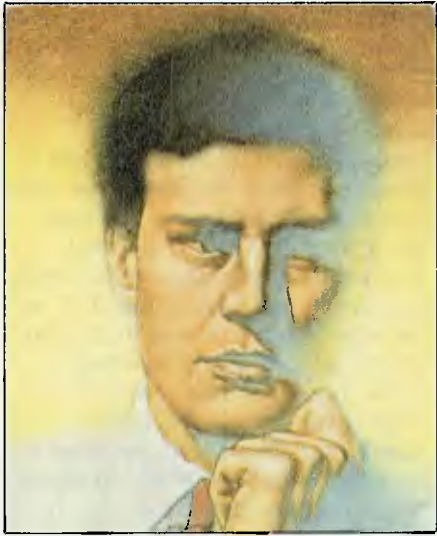
In balance, *SuperProject* is a functional product that does not stand out particularly. It has power and flexibility, but this is offset by some awkward procedures and its limitations.

#### **Software Publishing's Harvard Total Project Manager**

*Harvard Project Manager* was one of the first hits in the micro project management software market. This product is the advanced version (hence the "Total" in the title), adding features beyond the original. *HTPM* has a number of features that set it apart from the others, but not all of the differences are advantages.

The program can use a Microsoft Mouse and has a DIF-format export procedure to transfer your project data to your spreadsheet of choice. It includes numerous views of your project, including Gantt, network, and specific details for individual resources. It can be used to manage projects as well as plan them; you can track the predicted schedule against actual performance.

*HTPM* shines when it comes to report options. You can specify a range of dates for inclusion in the report and enter your own header and footer text. In many cases, you can select an individual resource (or range of resources) to be listed in the report. You can also control the order in which the tasks are presented, specifying up to two sort fields for a



report. Provided that your dot matrix printer is supported, *HTPM* even gives you the option of printing your reports sideways on the page.

The manual and slipcase are bound in handsome crimson leather (after all, it is named for Harvard) with gilt-embossed lettering. There is plenty of content, neatly presented in a classic type font. Unfortunately, the information is not that well organised and is saved only by a thorough index. The biggest problem is the poor quality of the screen shots; many are blurred to the point of illegibility.

The task entry is done through the network display, which means that you design the network as you go. Only after you create a task box do you enter the detailed information. This tends to be a bit slower than some of the other programs. *HTPM* is unusual in that whenever your network path branches, you must create a milestone task, which is a task with no duration. While these milestones may add clarity to your project plan, they also add to the effort of building a project.

The program can load multiple projects, such as the two store openings in our test problem and can report on the resource requirements across multiple projects. It can even identify resource conflicts, but that is as far as it goes. It will not level resource requirements, so you have to go through and adjust the schedule

# Quicknet uses

**P**roject Software & Development Inc. (PSDI) developed *Qwiknet Project Management* specifically for PCs. It is a multi-window, mouse-driven software package and for organisations using PSDI's mainframe product, Project/2, a link utility is provided, which could be extremely useful in extending project management facilities to the actual project site.

Quiknet uses the critical path method (CPM — similar to PERT), whereby the project manager enters the time requirements of each work step in the project and the logical sequence of carrying out the work steps. The CPM then establishes the order and timing in which work steps will start and finish.

## Qwiknet process overview

There are two key steps in the project management process: planning and implementation. In each of these phases, *Qwiknet* uses five data types — namely Networks, Resources, Activities, Resource assignments and Logic relationships.

The first step in the planning stage is to create the project or network. A network represents the total structure of the other four data types and is developed by adding and assigning activities, logic relationships and resources and then using the CPM to create a current schedule.

An activity is a single identifiable work step in a network. The logic relationships represent the sequence of activities and the way in which the activities are related to each other. Resources are cost items (such as people, materials and equipment) that you need to complete the network activities. One shortcoming in this area is the inability to restrict the amount of a resource available.

*Qwiknet* can be used to monitor progress as work is performed. This is accomplished most effectively by establishing a reference point based on the project plan called the target schedule. The package has the ability to 'freeze' a copy of the current schedule as the target schedule, and the ability to change the target at any

time caters for possible revisions. Only two schedules can be compared — the current schedule and the target.

Matching resources to project activities allows you to compare costs incurred against the budget. *Qwiknet* monitors resource usage and cost with three cost types. Budget resources apply to the target schedule. Actual resources used apply to the past part of the current schedule. Estimate resources apply to the future part of the current schedule. With resources and costs assigned to the schedule activities, you can plan your cash flow and maximise your productivity over the life of the project. During both the planning and implementation steps you can evaluate the impact of potential changes to schedules, resources and costs.

Two problems were encountered with adding and altering activities. *Qwiknet* stores activities in reverse entry order, that is the last activity entered is first. However, it does allow you to sort the network in a number of ways, but you cannot save the network in the sorted order. The other problem is that *Qwiknet* does not support automatic rescheduling. When you add or alter activities or change network logic, you must reschedule your network. The package should at least tell you to reschedule when changes are made (as in the manual recalculation feature of *Lotus 1-2-3*).

## Reporting capabilities

The wide variety of reports available with *Qwiknet* are generally quite good and a number of screens are suitable to screen dump as reports. A list of available reports is shown in Figure 1.

One of the most important outputs from a project management package should be the network diagram — a graphic illustration of what activities are to be done and in what order. Although *Qwiknet* does provide a network diagram, the quality and presentation are poor. Characters are used to draw boxes and lines and no attempt is made to keep the chart to a manageable size. I used the tutorial network provided to test the printing



# the critical path

of the network diagram, which consumed 10 pages printing a network with 14 activities. Another shortcoming is that the network is not time-scaled.

Current schedule  
Target schedule  
Early (start/finish) schedule barchart  
Late (start/finish) schedule barchart  
Combined schedule  
Actual cost and progress  
Activity resource assignments  
Logic relationships listing  
Current schedule barchart  
Target schedule barchart  
Early (start/finish) schedule costs  
Late (start/finish) schedule costs  
Network analysis  
Activity detail  
Resource library  
Activity listing

Figure 1: *Qwiknet's* variety of reports is quite good.

There are two major deficiencies in *Qwiknet's* reporting capabilities. It does not allow the printing of reports to disk, and it does not allow access to any advanced printer features which may be available. Also, there are not many printers supported. Besides the usual IBM Graphics Printer, those that are supported include the Epson FX-100 (although an LQ-1500 worked fine), TI Omni 800/Model 850, C. Itoh 8510BP and the Okidata Microline 84, 92 & 93 (all must have the IBM Module installed).

A tutorial/introductory guide booklet comes with the package,

together with a sample project on disk. The guide provides a good walk-through of *Qwiknet* features using the sample project.

## The mouse connection

*Qwiknet* comes with its very own mouse, manufactured by Mouse Systems. It is connected to a small interface box which connects to the PC through the serial port (COM1:) and to a power supply adapter into a wall outlet. The mouse is a little different to others, in that it does not use a ball roller and has three buttons rather than one or two. The mouse is used in conjunction with a mouse pad, a photo-electric sensor in the mouse reacting to movement across the grid-patterned surface of the mouse pad.

Fortunately I was able to test this mouse with *Dr Halo* — a graphics package which supports a Mouse Systems mouse, and it worked quite well. No mention is made as to whether current Mouse Systems mouse owners would receive any discount on the *Qwiknet* package.

## Capabilities and limitations

Figure two sets out the parameters and limitations of *Qwiknet*. Users scheduling a project with more than 250 activities should consider a minicomputer or mainframe system.

Features not currently available that I would like to see included in a future release of *Qwiknet* include resource limiting or levelling, increased printer support, print-to-disk capability, a common interface

(DIF) to other packages such as *I-2-3*, saving of sorted networks and automatic re-scheduling.

This package is copy-protected which means it may be installed on a hard disk (once). Unfortunately no backup disk is supplied and no method of un-installing is described. However, the manual advises those who wish to re-install *Qwiknet* to telephone PSDI (in the US) for a 're-installation verification number'.

I use *Microsoft Project* and find it useful and simple to operate. *Qwiknet* is more difficult to use, but it does provide some advanced features not found in *Project*. Some of these include the comparisons of current schedule against a target and actual costs against a budget, the capability to lag activities (available in *Project* using dummy activities), finish to finish, start to finish and start to lag activities (available in *Project* using dummy activities), finish to finish, start to finish and start to start logic (*Project* only supports finish to start), network diagrams and the ability to constrain an activity to start (or finish) not earlier than, not later than, or on a particular date.

My overall impression of *Qwiknet* is quite favorable — I believe its main problem is in the area of output — and its ability to link to *Project/2* makes it an enticing proposition to those companies having that product on their mainframe. ■

Tony Farrell is President of the Perth IBM PC Users Group.

## NETWORK LIMITS

Name — up to 8 characters.  
Description — up to 48 characters.  
Activities — maximum of 250.  
Logic relationships — maximum of 375.  
Resource identifiers — maximum of 100.  
Number of calendars — 2.  
Calendar range — 1st Jan 1980 to 31st Dec 2019.  
Maximum calendar length — 16070 days, or 43 years.  
Number of resource assignments — maximum of 3000.  
Number of schedules — 2 (actual and target).

## ACTIVITY LIMITS

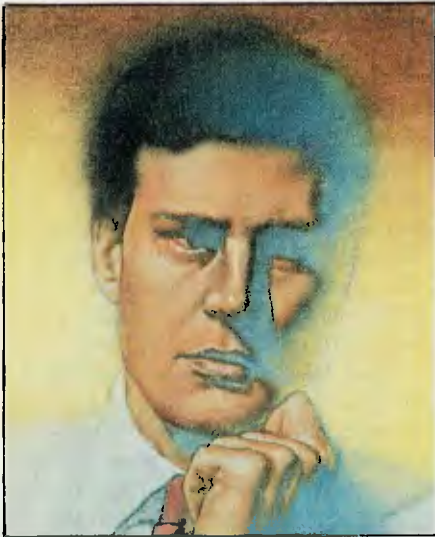
Identifier — up to 10 characters.  
CODE1/CODE2 — up to 10 characters each.

Description — up to 48 characters.  
Logic relationships — maximum of 255.  
Resource assignment — maximum of 12.  
Duration units — days or weeks.  
Duration (days) — 9999 days.  
Duration (weeks) — 2000 weeks.  
Activity cost range — up to \$21,470,000.  
Resource assignment range — up to \$21,470,000.

## RESOURCE LIMITS

Identifier — up to 10 characters.  
Description — up to 48 characters.  
Summary code — up to 10 characters.  
Unit cost — up to \$21,470,000.

Figure 2: The parameters and limitations of *Qwiknet*.



manually until the problems are resolved. There is a 200-task limit for each project, which would be constricting were it not for the ability to combine projects.

*HTPM* is copy protected, which is a flaw offset by the fact that you may install it to run on a hard disk without the key disk. Like *Microsoft Project*, this install procedure has no uninstall option, so, ultimately, it's an inconvenience.

The tutorial is thorough but is not interactive. You essentially watch information presented on the screen. There are no exercises in the manual to work through, so the most effective mode of learning seems to be jumping into your project and relying on the manual's index to steer you toward the help you need.

Overall, *HTPM* is a competent, if cumbersome, product. The reports can produce just about any set of information about the project that you might wish. It goes beyond planning to give you project management facilities, but you need to perform resource smoothing and network design by hand, which some other programs will do automatically.

#### Breakthrough Software's *Timeline*

Can a late entry into a software market make a dent in the lead of the established programs? *1-2-3* didn't let *VisiCalc* scare it away, and *WordPerfect* was not the result of

people deciding that *WordStar* had the market sewn up. Breakthrough Software's *Timeline* may not be in the same league as *1-2-3* or *WordPerfect*, but then again, it might.

Certain parts of the program are a bit rough around the edges. The network diagrams are spartan and functional — strictly short on flashy graphics. The program does not have a sideways printing mode but instead explains how to create a print file for use with a utility that you might own that can print sideways. On the printout of the Gantt chart, you must rely on a C in the lefthand column to tell which tasks are on the critical path. None of these flaws are fatal, although they can be annoying.

Other features of *Timeline* make these few shortcomings more forgivable. At the top of the list comes the ease of task entry. You work from a Gantt chart display and call up a task form by adding a new task or editing an existing one. In addition to the standard task name, duration, and resource assignments, you can enter up to two lines of notes to code tasks for reporting purposes and to record comments. You are not limited simply to days in the duration and assignment of resources. If you choose, you can plan your project requirements in terms of minutes.

After you have defined the tasks, dependencies are easy; just point to the predecessor, point to the successor, and link, all on the Gantt display. You can also turn off the automatic recalculation of the critical path, and the program will prompt you when the project needs to be recalculated. Unlike any of the other programs here, you may define a dependency with either an overlap or a lag. In other words, you may define a task as starting two days before the completion of its dependent task, and another that must wait for a day after its dependent is complete. You may schedule tasks either ASAP (as soon as possible) if you know the start date and want the earliest possible finish or ALAP (as late as possible) if you have a target date that must be hit and you want to see what you must do to be

certain of making it.

*Timeline* works out the critical path and resource requirements and flags those that are overextended. If you have two resources with similar abilities, you can use the split-screen histogram display to see if you can reassign part of the overload. If you want *Timeline* to resolve the conflict, it will quickly perform a resource levelling by adjusting the schedule, but the display will indicate which tasks have been delayed for want of adequate resources.

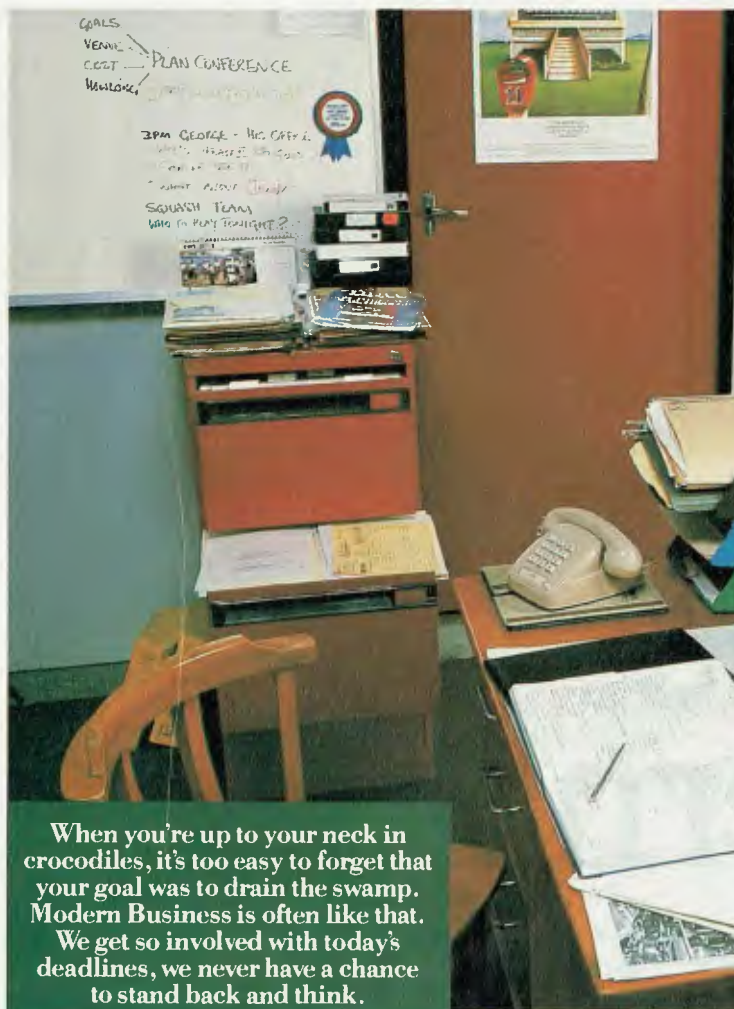
This program is a planning and management tool, and you can track actual performance as you go. There is even a feature that automatically archives up to five prior versions of your schedule, so that you can recover earlier drafts. The management feature that is of most help is the "alarm clock". This takes into account the date when you sign on and then runs through your project asking whether tasks scheduled for completion are in fact finished and whether tasks that should be started have been started. This makes updating your schedule considerably faster.

There is much more to like about *Timeline*. The reports may be "filtered" for different factors, so you have near total control over the contents. (You can even embed page break instructions in the notes fields.) All reports are time and date stamped to limit confusion. There is an "undo" command that lets you play "what if" with your project as much as you'd like. There are easy export facilities for spreadsheets and *dBase* (full system data and not just the Gantt chart data), two tutorial levels, and, perhaps, the best manual of the group in terms of clarity and content.

*Timeline* is not flashy in its presentation, but for a serious and useful tool for planning and managing complex tasks, it is tough to do better at any price. ■

*Alfred Poor and Bruce Brown are consultants with Soft Industries, an independent microcomputer consulting firm.*





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# The eternal calendar

Michael Covington describes a set of Turbo Pascal routines to calculate thousands of years of calendar dates

**Q**uick, what will the date be 90 days after Christmas 1987? Whether predicting the motions of the planets or figuring out when a loan will fall due, the ability to perform arithmetic with calendar dates is essential to computations involving time.

Calendar calculations are possible with the help of many makeshift methods of operation. The Pascal routines presented here, however, are noteworthy because they work correctly for calculations involving dates thousands of years to either side of the present date. After installing them in a standard function library, the user can work with them as necessary without worrying about their limitations.

These algorithms are capable of

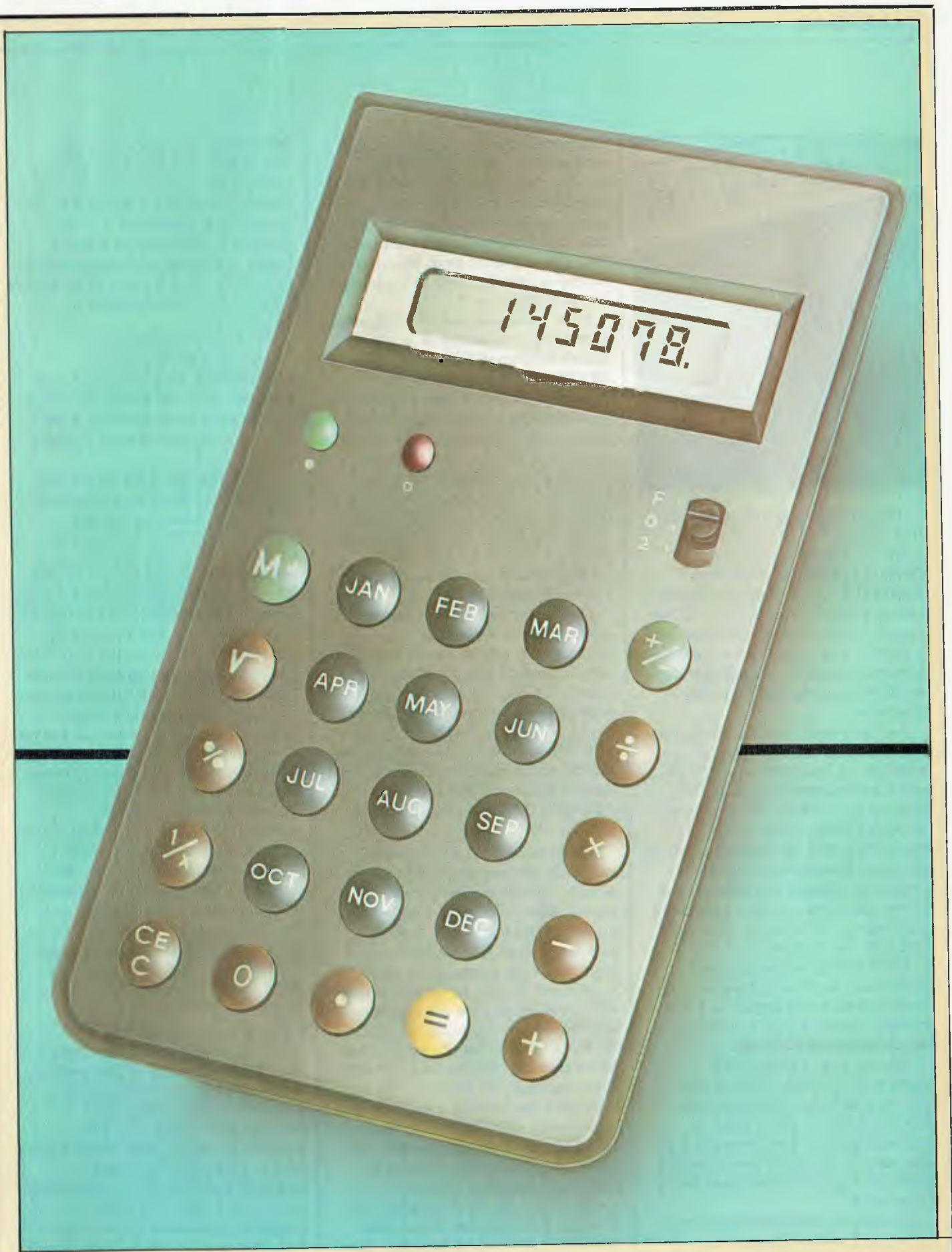
producing valid results for calculations involving any date from 4713 B.C. to at least 5000 A.D. when run on an IBM PC using Turbo Pascal. The degree of accuracy depends on the number of significant digits represented in the computer's floating point (real) data type. The algorithms that are applied here were taken from Jean Meeus' *Astronomical Formulae for Calculators*, but they have been published in many other places as well. Astronomers have been using them for years.

The secret to handling dates conveniently is to adopt a system of day numbers. Instead of working with a date expressed as a year, month, and day, a single number can be used to indicate how many days have elapsed since a particular reference point, or *epoch*. After the desired

calculations are finished, the day number can be converted back to year, month, and day.

Computer programmers have a tendency to refer to any day numbering system as a *Julian date*. Strictly speaking, the Julian date is the number of days that have elapsed since noon on January 1, 4713 B.C., a date chosen to facilitate easy conversion between various ancient calendar systems. This day begins at noon because the Julian date is used primarily by astronomers who do not like the date to change in the middle of a long night's work. The Julian date was developed by Joseph Justus Scaliger (1540-1609), who named it in honor of his father Julius; it should not be confused with the Julian calendar that was established by Julius Caesar.







The problem with Julian dates is that they tend to be rather large numbers. The Julian date for January 1, 1986, for example, is 2,446,431.5. On most microcomputers, numbers larger than 32,767 or 32,768 cannot be represented as integers, and a number like 2,446,431.5 is near the maximum number of significant digits available even for floating-point numbers.

For this reason, the day numbering system described here begins at midnight on December 31, 1979, an epoch astronomers refer to as 1980 January 0, or 1980.0. In this system, January 1, 1980, is day number 1; days before 1980 are assigned negative numbers. The routines treat the day number as a Pascal real number, but all twentieth-century day numbers are small enough to be stored as integer variables. The function DAYNUMBER converts a year, month, and day to a day number. The function returns the answer as a real number because it may be too large to be represented as an integer.

The first step is to deal with negative (B.C.) dates. Because there was no year 0, the year immediately before 1 A.D. is 1 B.C., which is represented as -1. To correct for the absence of a year 0, all year numbers that have negative values, must be increased by 1.

Next, the month numbering must be changed so that January and

February are treated as the 13th and 14th months, respectively, of the previous year. This places February at the end of the year, which is an advantage because February is the only month whose length varies and that is not 30 or 31 days. March is treated as month 3, and this calendar has no month 1 or 2.

Now, advantage can be taken of an interesting coincidence. If  $m$  is a month number in this system, then  $INT(30.6001*(m+1))-63$  is the number of days that have elapsed in a given year prior to the beginning of that month. The coefficient is 30.6001 rather than 30.6 in order to allow for rounding errors introduced by the computer's binary representation of numbers. INT is a function that returns the integer part of a floating-point number; INT differs from TRUNC only in that its result is also a floating-point number.

Finally, the day number can be calculated. It is a function of  $y$ , the adjusted year number;  $m$ , the adjusted month number; and  $d$ , the day of the month. The day number for the beginning of the current year can be found with  $FLOOR(365.25*y)$ , where FLOOR is a function that returns the nearest whole number not greater than its argument. For example,  $FLOOR(-3.5)$  is -4 (note that  $INT(-3.5)$  is -3).

The term  $INT(30.6001*(m+1))$  calculates the first day of the current month. The current day of that month,  $d$ , is added next. Finally, the term -723,244.0 is added. This does two things: first, it subtracts 63 as required by the second term; second, it subtracts 723,181 so the day number will be reckoned from the beginning of 1980, not the beginning of 1 B.C. (or 0 A.D.). Thus far this routine has performed calculations only with the Julian calendar. If, however, the calculated day number is equal to or greater than -145,068, the Gregorian calendar should be used instead. The difference between the Julian and Gregorian calendars affects computations. In the original system designed by Julius Caesar, any year divisible by four was a leap year; thus,

the average length of a year was 365.25 days. In 1582, Pope Gregory changed the equations slightly. In his system, a year that is divisible by 100 is not a leap year unless it is also divisible by 400, and the average length of the year becomes 365.2425 days. This is much closer to the earth's actual orbital period, which is 365.2422 days.

The switch from Julian to Gregorian calendars is easily accomplished. First, the number of leap year days that should have been left out must be determined. Then necessary corrections must be made for them.

The changeover date, or the date the Gregorian calendar was adopted at the papal court, has the day number -145,078; if the Julian to Gregorian correction is not applied, however, its day number is -145,068. This corresponds to October 5, 1582, in the Julian calendar but October 15 in the Gregorian. The 10-day jump was intended to correct the error that had been accumulating since Roman times. Individual countries stayed on the Julian calendar much longer; Great Britain and America did not go Gregorian until 1752 (with an 11-day corrective jump), and Russia, Greece, and Turkey kept the Julian calendar until the twentieth century.

When dealing with historical dates, remember also that the Roman custom of beginning the year on January 1 was not always respected. Through much of the Middle Ages, the year began on Christmas Day. In Britain, between the years 1300 and 1752, the year began on March 25; April Fools' Day was then a new year's celebration.

The procedure CALDATE translates a day number back into a year, month, and day. This algorithm is different from DAYNUMBER in that it works with Julian dates throughout. The first step is to translate the day number into a Julian date,  $z$ . Because, for example, 36,524.25 is the length of a Gregorian century, and 1,867,216.25 is the Gregorian equivalent of the Julian date February 29, 400 A.D. (the date



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on which the Julian and Gregorian calendars first diverged), corrections must be made for Gregorian-Julian discrepancies.

The heart of CALDATE is a series of numerical tricks similar to the trick with the number 30.6001 discussed above. The final step corrects for the absence of a year 0; if the calculated year is less than 1, then 1 is subtracted from it.

WEEKDAY gives the day of the week, deduced from the day number modulo 7. Many of the day numbers

in these routines are too large to be converted directly to integers, and Pascal's MOD operator cannot be used on floating-point numbers. WEEKDAY adjusts for this by adding or subtracting 28,000 (a large multiple of 7) as many times as necessary to bring the day number to within the appropriate range. Then it converts the day number to an integer and invokes the MOD operator. ■

*Michael Covington conducts research in artificial intelligence.*

## LISTING 1: CALENDAR.PAS

```
( Long-range calendrical package in standard Pascal )
( Copyright 1985 Michael A. Covington )
```

```
function frac(x:real):real;
  ( Fractional part of a real number. )
  ( Turbo Pascal provides this as a built-in function. )
begin
  while x < -maxint do x:=x+maxint;
  while x > maxint do x:=x-maxint;
  frac := x - trunc(x)
end;
```

```
function int(x:real):real;
  ( Integer part of a real number. )
  ( Uses real data type to accommodate large numbers. )
  ( Turbo Pascal provides this as a built-in function. )
begin
  int := x - frac(x)
end;
```

```
function floor(x:real):real;
  ( Largest whole number not greater than x. )
  ( Uses real data type to accommodate large numbers )
begin
  if (x < 0) and (frac(x) <> 0) then
    floor := int(x) - 1.0
  else
    floor := int(x)
end;
```

```
function daynumber(year,month,day:integer):real;
  ( Number of days elapsed since 1980 January 0 (1979 December 31). )
  ( Note that the year should be given as (o.g.) 1985, not just 85. )
  ( Switches from Julian to Gregorian calendar on Oct. 15, 1582. )
var
  y,m: integer;
  a,b,d: real;
begin
  if year < 0 then y := year + 1
  else y := year;
  m := month;
  if month < 3 then
    begin
      m := m + 12;
      y := y - 1
    end;
  d := floor(365.25*y) + int(30.6001*(m+1)) + day + 723244.0;
  if d < -145068.0 then
    ( Julian calendar )
```

```
    daynumber := d
  else
    ( convert to Gregorian calendar )
    begin
      a := floor(y/100.0);
      b := 2 - a + floor(a/4.0);
      daynumber := d + b
    end
end;

procedure caldate(date:real; var year,month,day:integer);
  ( Inverse of DAYNUMBER; given date, finds year, month, and day. )
  ( Uses real arithmetic because numbers are too big for integers. )
var
  a,aa,b,c,d,e,z: real;
  y: integer;
begin
  z := int(date + 244239.0);
  if date < -145078.0 then
    ( Julian calendar )
    a := z
  else
    ( Gregorian calendar )
    begin
      aa := floor((z-1867216.25)/36524.25);
      a := z + 1 + aa - floor(aa/4.0)
    end;
  b := a + 1524.0;
  c := int((b-122.1)/365.25);
  d := int(365.25*c);
  e := int((b-d)/30.6001);
  day := trunc(b - d - int(30.6001*e));
  if e > 13.5 then month := trunc(e - 13.0)
  else month := trunc(e - 1.0);
  if month > 2 then y := trunc(c - 4716.0)
  else y := trunc(c - 4715.0);
  if y < 1 then year := y - 1
  else year := y
end;
```

```
function weekday(date:real):integer;
  ( Given day number as used in the above routines, )
  ( finds day of week (1 = Sunday, 2 = Monday, etc.). )
var
  dd: real;
begin
  dd := date;
  while dd > 28000.0 do dd:=dd-28000.0;
  while dd < 0 do dd:=dd+28000.0;
  weekday := ((trunc(dd) + 1) mod 7) + 1
end;
```



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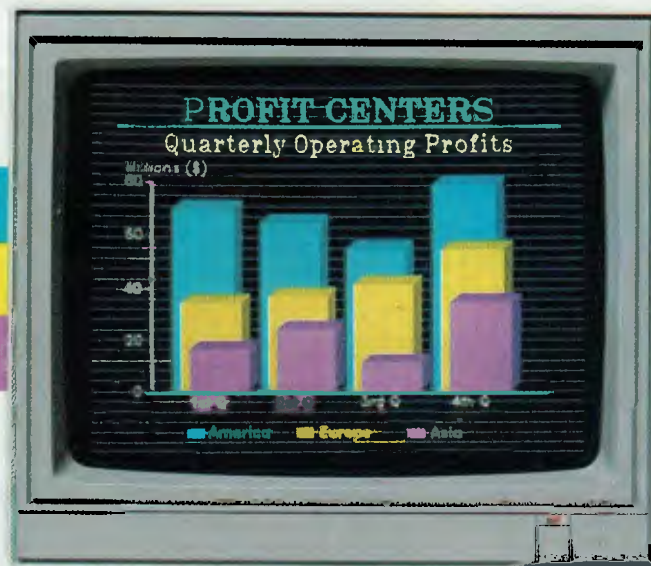
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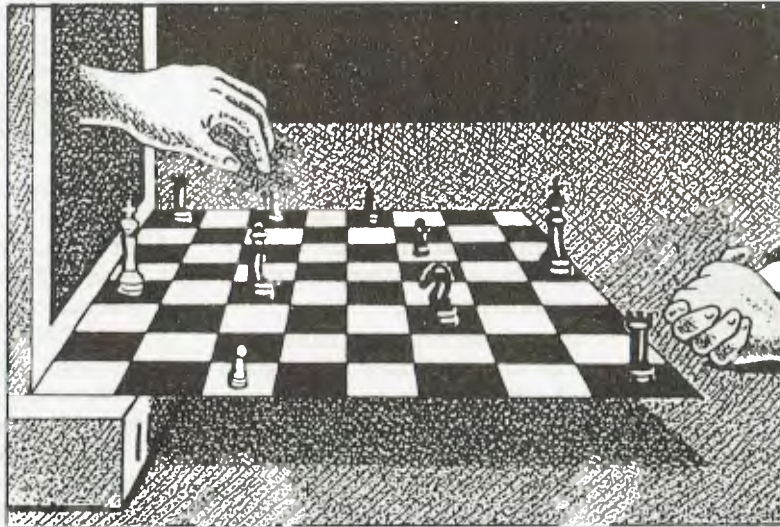
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# PC intelligence?



The wildcatter was nonplussed. The computer in front of him seemed to have been surveying and tracking oil exploration in these difficult parts for years. He typed in another request far more complicated than any he had yet given the machine:

"Show me a map of all the tight wells drilled before May 1, 1980, but since May 1, 1970, by Texaco that show oil deeper than 2000 feet, are themselves deeper than 5000 feet, and are now operated by Shell."

No more than 10 seconds later a detailed map of the region, pinpointing with blinking yellow lights the specified tightwell outposts, appeared on the screen.

If the computer were a person, it would be called intelligent — and rightly so — for its prodigious performance in these back hills, where mineral exploration expertise is at a premium. But crediting a computer with possessing intelligence requires a significant leap of faith. Most people would agree that before a computer deserves such a designation, it should earn its spurs by exhibiting far more cognitive skill than that required to quickly produce a group of landscape maps.

Actually, the Explorer, as the wildcatter's mineral-wise computer is known, is about as smart as a warehouse. It is an example of "brute-force" programming, which by cramming all the information needed to reach a solution into a computer's memory allows the computer to appear to think for itself by speedily searching through this data. In Explorer's case, a set grammatical path is programmed into the computer that enables it to understand the structure of all sentences; this path is similar to old-fashioned sentence diagramming. After a request is typed in, the computer searches for key words — objects and subjects — in a sentence and attaches them to loose verbs. It then reaches into its dictionary of words it will probably encounter and, by finding the words' definitions and usages, constructs the meaning of the sentence.

This is a useful approach as long as no sentence employs a word in a fashion that the computer's dictionary is not equipped to handle. For instance, if the wildcatter asked the computer, "Show me a map of all the tight wells drilled before the opening of the longest running Broadway

show," Explorer would be unable to react: It knows "show" as a verb, not as a noun. For the brute-force diagramming method to work in all instances, bigger and bigger dictionaries would constantly have to be devised, a task that would both tax the memory of the computer and slow it down considerably. Moreover, even if a computer included an immense number of words in its dictionary, it would still be nothing more than a dumb machine with a huge database, unable to build its own language understanding.

While Explorer is a mainframe, its limitations are precisely the same as those that plague the new generation of "software with artificial intelligence" for the IBM PC. These MS DOS-based intelligent database managers, smart word processors, and expert systems fail to display any characteristics of cognition. They are merely stolid, brute-force computer programs that rummage through piles of data and thousands of captive facts in trial-and-error style. They retain those facts that help solve the problem; they discard those that are irrelevant. Finally such programs reach a conclusion or a solution based on the best information they have.



### Logic-Line

Consider *Logic-Line Series 1*, from Clarity Software. This sophisticated database manager perhaps comes closer to achieving its lofty aims than most other PC programs that claim to possess intelligence. Like a well-trained librarian or research assistant, it sifts through data and retrieves the most obscure and, at first blush, unrelated references using complicated parameters that you provide. However, *Logic-Line* achieves its appearance of intelligence by a series of ingenious programming tricks.

Essentially, the program connects text references to search requests by first discarding the so-called noise words contained in each (the unimportant bridge words like *what*, *do*, *is*, and *and*) and then looking for patterns among the key words in the search request (those words remaining after the noise words are tossed out) and the key words in the text files. To do this, *Logic-Line* tags each key word in both the search request and the text files with a numerical code. When these numerical codes match, it retrieves an excerpt from the database. During a search, *Logic-Line* performs a mathematical computation, not a symbolic one. Like Explorer, it is completely ignorant of the context of the words in the user's request and the text file; it is only aware of their pattern.

Sometimes, as its familiarity with

the text file increases, *Logic-Line* reassigns these numerical codes so that the words can be taken less literally — a significant accomplishment for software. But even when it does such a numerical tagging shift, *Logic-Line* is still doing pure pattern matching, not contextual matching.

*Logic-Line* is a paradigm of artificial intelligence software for the PC. While, admittedly, it is head and shoulders above many of its competitors, like the others it still relies only on brute-force computation to perform its tasks.

To envision in human terms the process that a so-called AI program for the PC employs, think of someone late for a formal dinner party rummaging anxiously and hastily through a drawer for the one black bow tie (relevant data) there, tossing out odd pieces of clothing (irrelevant data) helter-skelter. The trouble with this method of retrieval is that a complex problem can bog down even the fastest piece of hardware or software in its own imposing architecture. If the human brain, which operates so much more slowly than a computer, functioned in this formalised "read everything" fashion, the movement of life would be reduced to a paralysing snail's pace.

### What's the difference?

If *Logic-Line* and its likes don't really possess true intelligence, does it matter? Some software developers feel that the continuing debate on whether these programs have cognitive skills or not is of little interest to users.

"If the purpose of my program is to get the train there at 10 o'clock, then that is all I am interested in achieving by any means or method," says Michael Pincus, one of the creators of *Logic-Line*. "I don't really care how the program works as long as it does work, does something useful, and fulfills its stated purpose. What we are trying to do is parallel human thought processes on the computer, not synthesise them."

Other software designers add that intelligence is such an elusive concept

that it is of little concern whether artificially intelligent PC software actually has cognitive abilities or not. More importantly, they say that to judge computer intelligence, researchers should use different criteria than those used to recognise human intelligence.

By claiming that their programs are examples of artificially intelligent software, however, the developers of *Logic-Line* and similar packages are perpetuating a basic confusion about the definition of AI that has hampered the progress of this field practically since its inception.

Artificial intelligence as a discipline first went public in 1956 at a Dartmouth University conference after 10 years of relative obscurity. This research had, from the start, one basic goal: to make computers and software that in broad ways think, understand language, and possess vision.

Unfortunately, that goal was sidetracked by the Dartmouth conference's showstopper: the Logic Theory Machine. This computer did one thing well: It was able to prove the geometric theorems set forth in Whitehead and Russell's masterwork, *Principia Mathematica*. Moreover, it did so more quickly than most mathematicians — and in at least two cases, its solutions were far more efficient and more creative than those reached by its human counterparts.

But the Logic Theory Machine was not intelligent; it was nothing more than the most prodigious data manipulator yet created. It had only high-level, preset, and limited pathways of reasoning, based on high-level, preset information about mathematical theorems. The machine was inflexible and could not adjust to more mundane problems, as true intelligence can.

Nevertheless, because of its remarkable output as an advanced mathematician, the Logic Theory Machine made a big impression. As Herbert Simon, a Nobel Prize winner who, with Alan Newell, created the Logic Theory Machine, put it soon after the Dartmouth conclave: "There



are now in the world machines that think, that learn, and that create."

Simon's statement and his computer were such an impressive promotional pitch for artificial intelligence that researchers in 1956 embraced them with open arms. And in their eagerness to rally behind the Logic Theory Machine, they never looked behind its curtain to uncover the programming legerdemain.

The sad fact is, however, that this one computer program set back the discipline by as many as 20 years. For as exaggerated word of its abilities spread throughout the fledgling AI community, imitators proliferated. Attempts to design new models of the mind were shelved. Instead, creating machines that worked like the Logic Theory Machine, based on the same brute-force programming and data manipulation methods, took up almost everyone's time throughout the 1950s and 1960s.

Ultimately, the Logic Theory Machine and its imitators ran their course. The emphasis in the discipline has changed so that now most of the researchers are far more interested in understanding specific, human mental processes and in modelling them on a computer. The breakthroughs emerging from the AI field come from research in expert systems, natural language, and robotic vision.

#### **The real thing**

Despite any statements to the contrary, AI researchers have found that intelligence is not a nebulous concept that conveniently varies with the person explaining it. Intelligence has a very simple definition. It is the ability to learn or understand from experience and to respond successfully to a new situation; it can make judgments, associate relevant information and synthesise new knowledge from such associations, and reach wholly unique and accurate conclusions for a given situation. At this point, no PC software program can rightly claim to live up to even a part of that definition.

Users of PC artificial intelligence software have yet to see the real thing.

So have most mini and mainframe users, for that matter. However, artificial intelligence researchers at universities all over America, who have been feverishly attempting to bridge the chasm between human intelligence and machine intelligence now have impressive successes under their belts.

Researchers have developed computers that can understand complete sentences, despite fractured syntax and structure, and even form their own definitions for new words in those sentences. Other computers are beginning to visually recognise objects even if they are nearly obscured by other objects. New expert systems can juggle several hypotheses and subjects at once — the way humans do — and then offer conclusions and judgments based on a cosmopolitan understanding of the real world. There are even computers able to learn new skills or master new topics by using analogies to compare them with those they already understand.

As these breakthroughs in hardware and software design suggest, AI is a discipline with an important agenda. When artificial intelligence is perfected in the research labs and then migrates down to the microcomputer, PC users will be able to talk to their computers on human terms, using English commands with a free-wheeling structure, and obtain computer advice and aid that are truly unique — not based on a preset line of reasoning. The AI programs on the horizon for the PC — based on today's most advanced research, include:

- Database managers and spreadsheets that present a range of answers to any one request. For instance, while it helps you to build a five-year business plan, the software will, besides computing the figures, suggest partial and best-case scenarios and strategies by sifting through its extensive knowledge of, say, business plans, mergers, and product life-cycles and creatively associating this stored information with the new statistical data.
- Word processors that construct correspondence from your bare-bones

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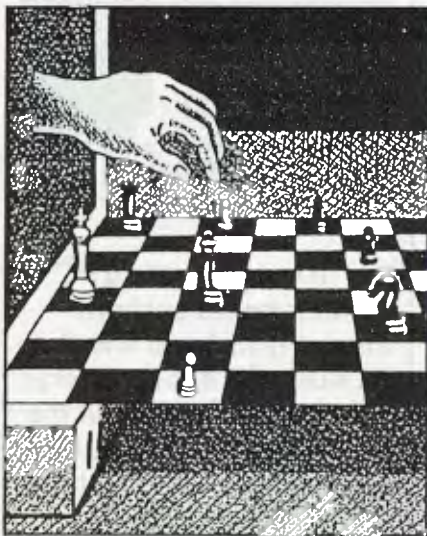
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thoughts. These programs will also correct misspellings and mistakes of fact as you write, and alert you. A notation on the screen might say: "The capital of Victoria is not Geelong but Melbourne. Do you want to have this error changed in the copy?"

- Software without complicated, confusing manuals. These programs, by asking you questions and remembering your progress, will automatically turn off menus when you have learned less cumbersome command structures and guide you on-screen through program shortcuts that you seem to be avoiding, forgetting, or not understanding.

#### PC software

If today's self-proclaimed PC AI programs are not yet the genuine item, how valuable are they? By and large, they are extremely important links in the chain of software evolution. Most of them are well programmed and innovative and incorporate enough enhancements over traditional software to permit their developers to label them unabashedly as AI, however incorrectly. Besides *Logic-Line*, at least a dozen other programs fit into the same genre of well-designed pretenders to the AI throne.

*Management Edge* from Human Edge Software Corp. is a business adviser system that attempts, through

interactive dialogue, to help managers improve their performance and raise productivity. To truly merit the title "intelligent program", however, it would have to possess several important characteristics, like those of a human adviser: the ability to learn from experience as it interacts with a variety of users, so it can give flexible advice; the ability to understand and respond to answers more complex than yes and no; and the ability to give unique advice to each user that considers how well that user has been able to implement earlier advice. Its brute-force programming methods do not permit *Management Edge* to fulfill any of these criteria.

*SAVVY PC* from Excalibur Technologies and *O&A* from Symantec are similar to *Logic-Line* and suffer from the same core problems, which keep them from passing for intelligent software. Their natural-language interfaces are simply too strongly based on pattern recognition to represent true cognition.

Placing expert-system software shells, such as *Xi* from Expertech Ltd. and *Expert Ease* from Human Edge Software, in the category of artificial intelligence is perhaps the most egregious error to emerge from the confusion about the definition of AI. These programs have a long way to travel before they can be considered sophisticated expert-systems designers.

To design a truly intelligent expert system requires many years of "knowledge engineering", the process of dragging information, knowledge, and rules of thumb out of an expert in a particular field and building a program out of it. And after the knowledge engineering is done, designers spend an equal amount of time tinkering with the information, making sure that it is pure, that it is not contradictory, and that it results in effective advice. The current crop of PC-based expert-systems shells are, for the most part, able to handle only the most basic elements of knowledge: statements like, "If the account is 90 days past due, then mail out a reminder notice." They can't approach

the complex knowledge synthesis that large-scale intelligent expert systems attain. And these PC expert-system shells have none of the massive knowledge-purity, error-checking features necessary for a true expert-system builder.

#### Outer flaws

All of these PC "artificial intelligence" programs are capable and useful as far as they go. But in addition to their internal, brute-force programming flaws — often hidden from the user — each also suffers from one or more chronic external deficiencies that immediately unmask them as mere AI masqueraders.

For one, too much of these programs' documentation is complicated and diffuse enough to make you think frustrating manuals like *WordStar's* a dream. AI, by definition, is supposed to make hardware and software more human and understandable, not more complex and machinelike. Take, for example, this excerpt from the manual of a database manager with a natural-language interface:

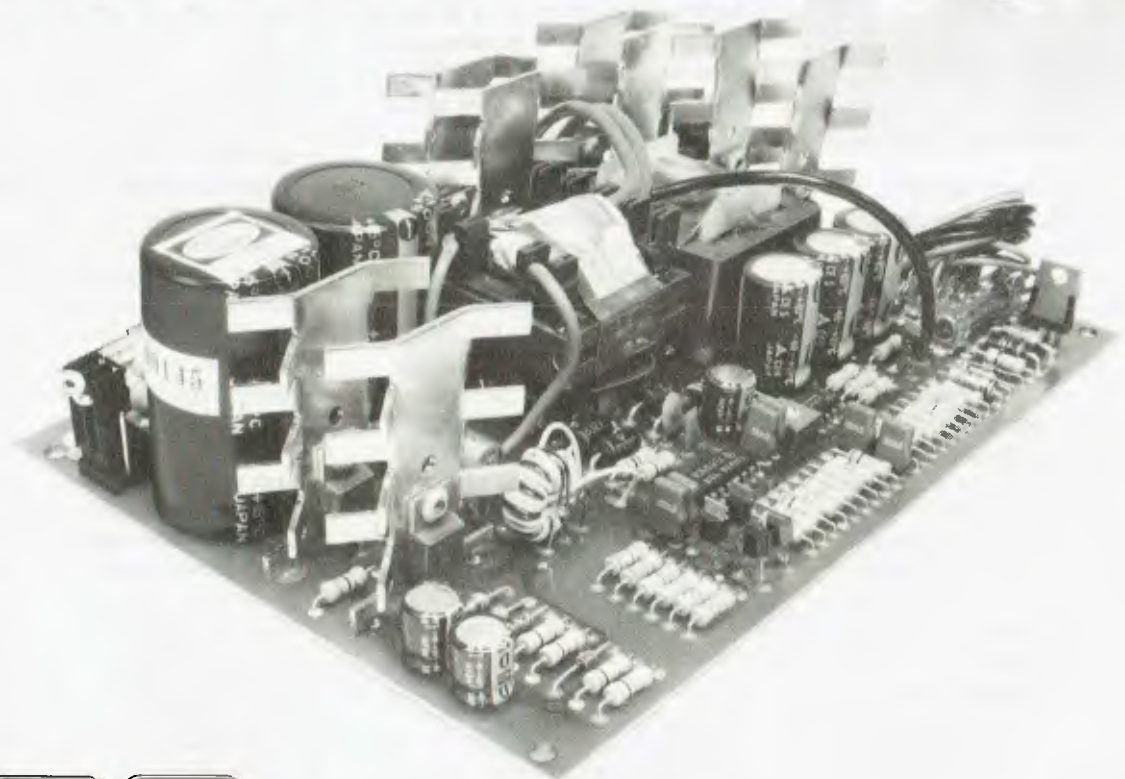
"You have your choice of three kinds of search. (1) The first kind is a simple word search and data retrieval. (2) The second kind is an intelligent associative element search of which there are three types: convergent, divergent, or all-associative. (3) The third type is an *a priori* (or given word set) type cross search where questions, sentences, paragraphs, lists, or any type of natural-language structure can be used to cross-interrogate a file or group of files."

If this program is supposed to understand natural language, why isn't its manual written in plain English?

Expert systems or adviser software are the worst example of a second common deficiency. These programs, which offer advice on issues from negotiations and management to how to keep fit, are often little more than set-in-concrete statistical tables presented in a palatable and interesting form. Most of this software



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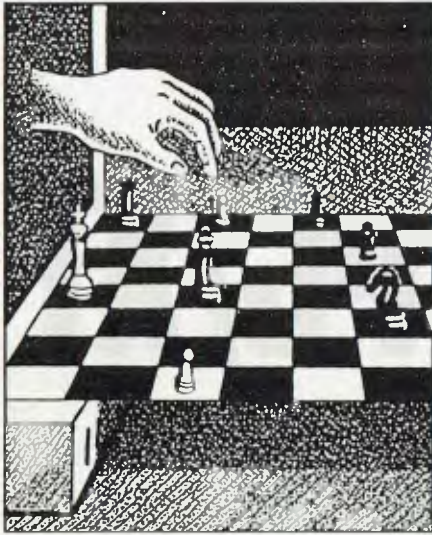
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is built on a rigid "test" structure: for example, a psychological program might present you with a questionnaire that determines whether you are extroverted, introverted, or neither. All the program's later responses and advice would be based on that simplistic categorisation of your much more complicated personality. Such a program leaves little room for the grey areas of real life. True intelligence must be flexible.

When true artificial intelligence finally arrives on the PC, it should simplify traditional applications, not make them more cumbersome. Many of today's "AI" programs actually do the opposite. For instance, the manufacturer of a recently released word processor claims it's intelligent because it "thinks ahead of you as you type". If you start a sentence with the letter *T*, a menu of words — *the, their, they*, and so on — appears on the screen. If you find the word you are going to write in the menu, you type a corresponding number and your chosen word appears at the beginning of the sentence. This process continues with each word in the document. Not only is this product not an example of artificial intelligence — it is merely a fast program with a large dictionary — it is useless as a word processor, even in traditional terms. I can't imagine how this kind of "stutter-stop" typing would speed up writing.

### Hyperbole versus reality

Interestingly, although many software manufacturers have succumbed to the allure of using "artificial intelligence" as a marketing buzzword, they are often more cautious when discussing their products with a reporter. "Is *Management Edge* a supersophisticated expert system?" asks Jim Johnson, president of Human Edge Software. "The answer is no. The value of the program is that it incorporates six or seven man-years of reading in the area of management techniques — that's 4000 to 5000 papers and almost any book on the subject in the Stanford Library — and it tailors this knowledge to your particular problem. It doesn't learn and it doesn't interact overly much with you. It just presents knowledge."

Most experts contend that technological considerations are holding back AI on the PC. Chief among them is the lack of storage space in the computer. AI researchers have found that they need huge amounts of memory to process symbolic concepts and data; mathematical computations, by contrast, can fit quite well on to smaller computer systems. When parallel processing architecture arrives for the PC, it may help eliminate this constraint, but don't look for it for a few years yet. Also, more advances in natural-language concepts, voice technology, and robotics are needed before true artificial intelligence can be implemented on micros.

Precisely because artificial intelligence is a difficult concept to pin down, few PC software companies are willing to develop very strong relationships with the AI research community. Most say that they will continue to enhance their PC "artificial intelligence" products using traditional mathematical data processing until cognitive computing matures enough to be included in general applications software for the microcomputer. One of the few companies that is willing to gamble with a more research-oriented approach to AI is Lotus

Development Corp.

Recently, Lotus showed its interest in AI by hiring Jerry Kaplan, a co-founder of Teknowledge, a leading commercial artificial intelligence company, to develop and design software based on AI techniques. Kaplan is building a program that will help structure the workday for executives with highly varied work loads. As Kaplan describes it, the software will primarily organise ideas, notes, information, and schedules. And where will artificial intelligence creep into this product? The program will have to be able to, with intelligence, give priority to a massive amount of cluttered input and determine in what order and in what form the executive should handle the jobs," Kaplan explains.

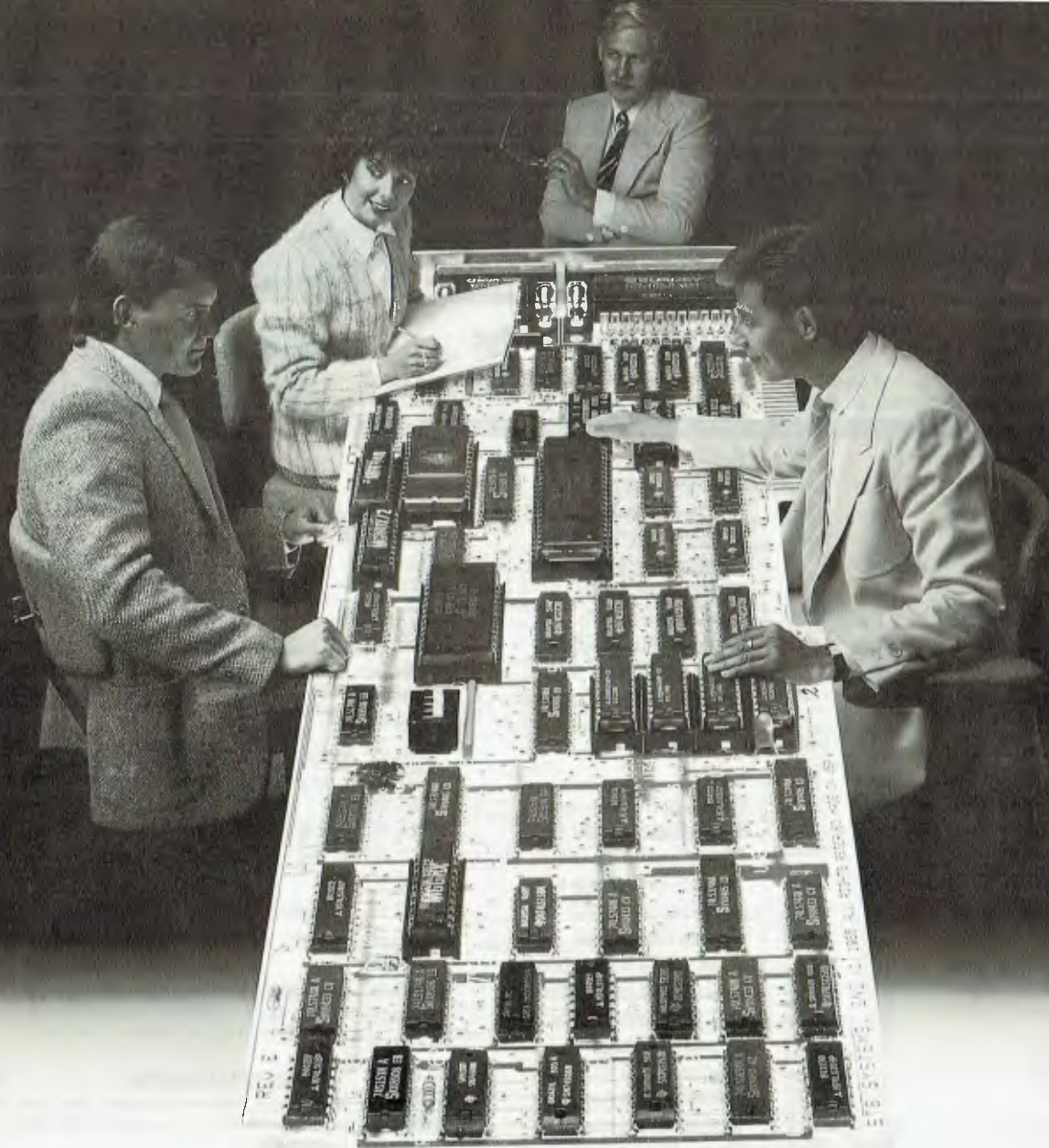
Although Lotus is reaching out to the artificial intelligence community for techniques and ideas, it has no plans to market this program — or any other — as possessing artificial intelligence. "Don't expect to see Lotus touting a program as artificially intelligent," says Kaplan. "Rather, our approach is to treat AI as a programming tool, a way to build better business applications. Treated as a software technology, AI should be used to develop better interfaces, including natural language and non-keyboard interfaces; to allow people to interact with programs more familiarly and comfortably; and to permit low-level symbolic reasoning."

In contrast to Lotus's low-profile approach, firms like Clarity Software essentially claim to have perfected AI in their programs. The conflict, then, between true artificial intelligence and PC "artificial intelligence" is likely to continue. Still, some observers believe much of the confusion will disappear as PC software evolves.

In looking for intelligence in the PC, use the same common sense as you would searching for intelligent life. Don't assume that a plant is intelligent because, for survival's sake, it turns toward the sun. ■

*Jeffrey Rothfeder is an artificial intelligence specialist.*





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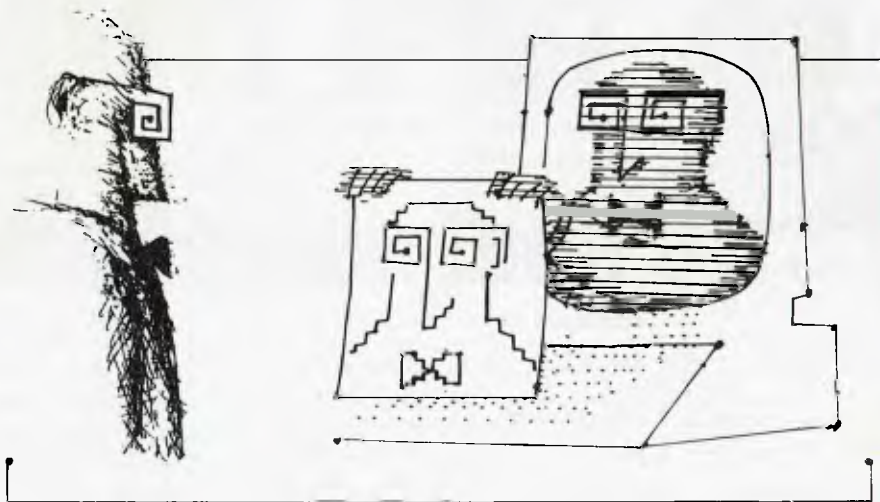
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# A print screen switch



Tom Swan explains how to avoid triggering accidental, unwanted screen dumps

One of the most convenient features on the IBM PC is the print screen command. Hitting the Shift and PrtSc keys at the same time will print whatever is currently on the screen.

Sometimes, however, this convenience results in surprising hard copies because of the proximity of the Shift and PrtSc keys on the IBM keyboard. Hitting both of these keys accidentally, when only the shift is desired, is easy to do, even for typists with the most accurate aim. Not only does this waste a page of paper (or a couple of expensive preprinted forms), but it can also jolt a programmer's concentration.

What is needed is a way to turn the print screen feature off. The *IBM Technical Reference Manual* reveals that the PC has a switch (actually just a location in memory) that the print screen command uses to tell whether or not the screen is currently being printed. This switch, located at address 0050:0000, is called the *status byte*.

If the status byte is set to 0, then no print screen is in progress; if it is set to 1, a print screen is being performed. A value of 255 (hexadecimal FF) indicates an error has occurred during

printing. This is only likely to happen when the printer is turned off at the time Shift-PrtSc is pressed.

The purpose of the status byte can be understood by examining the print screen routine, located in the PC ROM BIOS. (The routine is found on page A-81 of the *IBM Technical Reference Manual*, version 2.02 or the PC/XT.)

Because the print screen routine is called by an interrupt, and because the routine itself calls another routine via another interrupt (hexadecimal 10) to read the characters from the display, the print screen routine can interrupt itself. Although it is possible to turn off interrupts in the PC, this cannot be done by a routine, such as that for print screen, that itself uses interrupts. The status byte solves the problem by giving the print screen routine a way to determine if it would be interrupting itself.

The effect of all this is to prevent new print-outs of the display from being initiated during repeated presses of the Shift-PrtSc keys. If this were not done, holding the Shift-PrtSc keys down a little too long could result in a few dozen copies of the display.

Turning off the PC's print screen feature is as simple as setting the status byte equal to 1. Then, pressing Shift-PrtSc invokes the print screen routine, but when it checks the status byte it is fooled into thinking that *another* print screen is in progress, and it simply ends. The effect is that nothing happens.

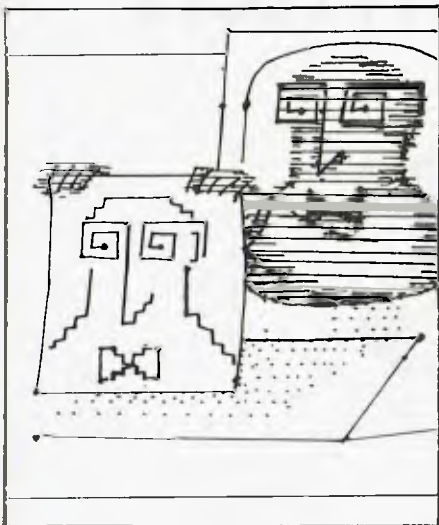
Listing 1 is an 8088 assembly language program that will toggle the status byte from 0 to 1 or from 1 to 0 each time it is run. The print screen feature can be turned off and on as often as the program can be run.

To enter the program, type in listing 1 using a word processor (or

```
0915:0100 BA 2E 01 B4 09 CD 21 1E-B8 50 00 8E D8 80 36 00 :..4.MI.8P..X.6.
0915:0110 00 01 8A 1E 00 00 1F BA-52 01 B4 09 CD 21 BA 63 :.....R.4.MI:c
0915:0120 01 0A DB 74 03 BA 68 01-B4 09 CD 21 CD 20 50 52 :..[t.:h.4.MIM PR
0915:0130 54 53 43 20 31 2E 30 31-0D 0A 28 43 29 20 31 39 TSC 1.01..(C) 19
0915:0140 38 34 20 62 79 20 54 6F-6D 20 53 77 61 6E 0D 0A 84 by Tom Swan..
0915:0150 0A 24 50 52 49 4E 54 20-53 43 52 45 45 4E 20 69 .$PRINT SCREEN 1
0915:0160 73 20 24 6F 6E 0D 0A 24-6F 66 66 0D 0A 24 00 00 s $on..$off..$..
```

Figure 1: If a user does not have an assembler, these values, which are the same as those produced by assembling PRTSC.ASM, can be entered using DEBUG.COM program.

## PRINT SCREEN



edline) and assemble with IBM's Macro Assembler. Link the resulting .OBJ file, and run EXE2BIN to produce a .BIN file that can then be renamed .COM, ready to run. Ignore the warning about the stack given by the linker.

Figure 1 is a binary dump — that is, a list of the hexadecimal values that make up the program. These values can be entered and saved with DEBUG.COM if the user does not

have access to an assembler. Enter the following command in order to start the debug program:

**DEBUG PRTSC.COM**

Ignore the warning, "File not found." To begin typing in the values shown in figure 1, enter

**E 100**

Some numbers in the following format will appear on the screen.

**0900:0100 76.**

The cursor will be positioned after the period. The value before the period will be what is presently stored at the location represented by the first eight numbers. These values will change.

Enter all of the hexadecimal values from figure 1, with one space separating each two-digit figure; do not type in the addresses on the left side. Press Return after all the values have been entered. The debug program's prompt (—) should appear. Entering

**D 100 16F**

should produce an exact replica of figure 1. Correct errors by entering

**E <address>**

where <address> is one of the four-digit addresses to the right of the colon (in the left column of figure 1). Use the space bar to skip over to the incorrect value and type in the correction.

Before saving the program, two registers must be set to tell DEBUG.COM the size of the program just entered. To set a register, enter R and the register name, then enter a value for that register. First, set the BX register to 0000. Enter R BX, press Return, then enter 0000 and press Return. Use the same steps to set the CX register to 0170. Enter R and press Return to verify that BX = 0000 and CX = 0170.

To save PRTSC.COM, enter W and press Return. A message should appear indicating that 0170 bytes are being written to disk. To quit the debug program, enter Q and press Return. Enter PRTSC to run the program. ■

*Tom Swan is a consultant who runs his own business, Swan Software.*

### LISTING 1: PRTSC.ASM

```

page 60,120
title PRTSC.ASM 1.01

;-----
; Program : Toggles print screen feature on/off
; Version : 1.01
; System : IBM PC DOS 2.00
; Language : IBM 8088 Macro Assembler
; Author : Tom Swan P.O. Box 206 Lititz, PA 17543
;-----
;01-Aug-84 -ts- start date
;
cseg segment para public 'CODE'
assume cs:cseg,ds:cseg

;----- Equates
;
cr equ 13 ;ASCII carriage return
lf equ 10 ;ASCII line feed
romdata equ 50h ;seg address of ROM BIOS data
prtstat equ 0 ;offset of status byte
;----- Start of Program
;
org 100h ;standard .COM entry point
prtsc:
mov dx,offset progid ;print program identification
mov ah,9 ;ah=DOS print string$
int 21h ;call DOS to print string
push ds ;save data segment register

```

```

mov ax,romdata ;set ds=ROM BIOS
mov ds,ax ;data segment address
xor byte ptr ds:[prtstat],1 ;toggle status on(0) / off(1)
mov bl,ds:[prtstat] ;bl = current status
pop ds ;restore saved ds register

;----- Display status ON or OFF
;
mov dx,offset statstr ;print status string
mov ah,9 ;ah=DOS print string$
int 21h ;call DOS to print string
mov dx,offset staton ;prepare to print "on"
or bl,bl ;test current status
jz prtsc1 ;jump if on (0)
mov dx,offset statoff ;else print "off"

prtsc1:
mov ah,9 ;ah=DOS print string$
int 21h ;call DOS to print string
int 20h ;return to DOS

page
;----- Strings
;
progid db 'PRTSC 1.01',cr,lf
db '(C) 1984 by Tom Swan',cr,lf,lf,'$'
statstr db 'PRINT SCREEN is ','$'
staton db 'on',cr,lf,'$'
statoff db 'off',cr,lf,'$'
;
cseg ends ;end of segment
end prtsc ;end program

```



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PCTurbo 186	82	43	35
PCTurbo 186/87	N.A.**	12	23

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\*Future version 1.1 of Framework will be AT compatible.

\*\*Future release of Lotus will support 8087.

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\*Price does not include monitor.

PKBCOM6275



# New products

## Working in comfort

Systemline Furniture's range of computer desks has been designed with comfort and functionality in mind, in keeping with the present concern about reducing RSI (repetitive strain injury) in the workplace.

A main feature is a specially designed "Ergoslope" desktop, featuring a sloping front edge to reduce the strain of keyboard work.

The computer's keyboard rests on the desk while a detachable, two-tiered hutch fits onto the desktop, keeping disk drives within reach and monitor at eye level.

The hutch can be detached to make the unit a writing table, and a shelf under the desktop provides storage for paper, books and other equipment.

Systemline says one of the most popular models is the HCD-1200, an expandable work station with three optional configurations.

*Systemline Furniture Pty. Ltd.,  
24 Enterprise Avenue,  
Padstow N.S.W. 2211  
Tel: (02) 771 3999*

## Neat solution

Neology Limited, a Unix software house, has announced a new direction to its business operations. The company, which has been solely involved in software development, will be offering a hardware and software package which can handle almost all business needs.

The new multi-user system is based on the IBM PC AT. Neology has tagged it the "NEAT" (for Neology and AT) solution to business problems, and has taken the IBM AT and increased its power through the addition of a 32-bit co-processor.



*Systemline's HCD-1200 computer desk, an expandable work station with three optional configurations*

The company says this will provide users with 2M of memory and the ability to support up to eight terminals and printers and will be faster than a VAX 750.

Neology will offer its range of Unix-based office automation,

accounting and telex software to run on the system. It will also support all IBM software running under MS/DOS.

A typical configuration of NEAT will cost about \$50,000 and Neology will service and support the software running on

the new system. It plans to set up a service division for this purpose.

**Neat Solution, up to \$50,000**  
*Neology Ltd  
1 Rosebery Avenue  
Rosebery NSW 2018  
Tel: (02) 662 4111*

### Emulex accelerator board

Emulex Corporation has introduced the Persyst SuperCharger, a combination high-speed 8086 microprocessor and 512K high-speed 16-bit memory board.

The SuperCharger can increase IBM PC or compatible computer speed by two to three times says Emulex. By using the SuperCharger, a computer owner benefits from selectable processing speeds, quick memory access and PC operating system compatibility.

The 8086 processor chip on the SuperCharger board will run either at 9.54 Mhz or at 4.77 Mhz (the same speed as the 8088 on the IBM PC), selectable by a switch on the back panel or by software. Running the 8086 at 9.54 Mhz clock speed allows calculations to be performed in less than half the time of the standard 8088 processor. The 4.77 Mhz capability ensures that any software requiring the slower rate can still be used.

Emulex says the 512K 16-bit memory allows very large spreadsheets and programs to load and operate quickly, significantly reducing the processing time for "processor intensive" database and spreadsheet programs.

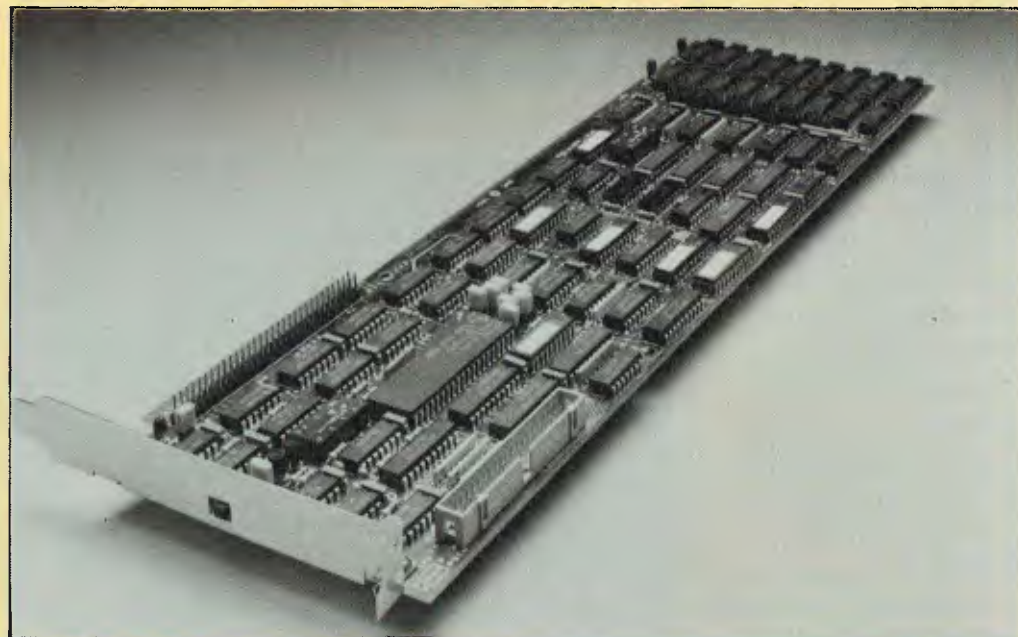
The SuperCharger board is compatible with virtually all IBM PC operating systems, software and peripherals and requires no special software or installation procedures. Emulex Persyst products have a two year limited warranty.

*Emulex Corporation  
Suite 106, 160 Rowe St  
Eastwood NSW 2122  
Tel: (02) 858 4833*

### New COBOL Tools

Microsoft has announced COBOL Tools for the MS-DOS operating systems, a set of utilities for COBOL programmers to develop, debug, maintain and enhance their applications.

COBOL Tools includes an



*Emulex Corporation says this Persyst SuperCharger Accelerator can increase IBM PC or compatible computer speed by two to three times*

interactive symbolic debugger, a cross-reference utility, a menu handler, and for MS-DOS, a mouse-input module. The MS-DOS version is designed for use with Version 2.1 of Microsoft's COBOL Compiler.

The tools package includes four separate utilities: two designed to help with the development process, and two that can be incorporated directly into a programmer's applications.

Microsoft says the ViewCob symbolic debugger helps programmers debug their programs by letting them analyse programs at the source code level. Using ViewCob, programmers can observe both the flow of execution and the contents of variables while their programs are running. If they choose the trace option, each statement will be highlighted as it is executed.

ViewCob also allows users to set break points for examining and searching source text more thoroughly and utilises color, if available, to emphasise debug information, says Microsoft.

ViewCob has windows (up to 10), on-line help, can modify variables dynamically and trap fatal runtime errors.

Microsoft says its CobRef cross-reference utility lets users generate detailed cross-reference listings of a program's variables, files, and procedure calls.

The menu handler provides programmers with a menu-interface similar to *Multiplan*, that can be incorporated directly into applications to make them more user-friendly.

The CbMouse object module makes it easy for programmers to develop applications that use the Microsoft mouse.

Microsoft says that along with its COBOL Tools package, it is releasing Version 2.1 of its COBOL Compiler, featuring enhanced performance. Minimum system requirements are MS-DOS 2.0 or higher, 192K of RAM, and one disk drive. Cobol Tools has similar requirements, except that minimum RAM is increased to 256K. The Tools package requires Version 2.1 of the COBOL Compiler.

**Microsoft COBOL Tools \$595**

*Microsoft  
17 Rodborough Rd  
Frenchs Forest NSW 2086  
Tel: (02) 452 5088*

### Engineering on a PC

Compumod is introducing MSC/case to designers and engineers in Australia and New Zealand. This PC program is used to calculate commonly used equations in structural and mechanical engineering with an easy to use menu format and graphic displays.

MSC/case can be thought of as an interactive text book, calculator and graphic display with the following types of problems solving capabilities: section property calculations; beams and column stresses, displacements, forces and buckling loads; ring, cable, arch and frame displacements; plate, shell and pressure vessel calculations, and natural frequencies of vibration.

MSC/case operates on the IBM PC range, Zenith PCs and other compatibles and requires 192K of RAM.

**MSC/case \$1395**

*Compumod Pty Ltd  
20 Martin Place  
Sydney NSW 2000  
Tel: (02) 27 7405*



## External drives for Apricot

Delta Drive is an external floppy drive system for the Apricot microcomputer consisting of a floppy drive controller card, an external box containing one or two floppy drives and full software package which includes ACT-Alien. The floppy drives can be any combination of 3½ inch, 5¼ inch double-sided (either 48 tpi or 96 tpi) or 8 inch single-sided.

The software integrates the external drive (or drives) into the operating system of the host microcomputer (MS-DOS 2.11 only). It allows formatting, reading and writing of 5¼ inch IBM PC-DOS (8 or 9 sectors/ track) formats, 8-inch single sided density (IBM 3740) format, 3½ inch Apricot and HP 150 formats and over 120 different CP/M 5¼ inch formats, single and double sided, 48 tpi and 96 tpi (with the appropriate drives being connected).

The external drive box is connected to the controller card by a signal/control cable and a power cable. No mains power is required for the drive box. The system is particularly useful for copying and sharing data files between the Apricot, the IBM-PC as well as many other CP/M or MS-DOS systems.

Delta Drive, developed in Australia by Delta Computer Systems Pty. Ltd, is supplied with a three months guarantee on the drives and 12 months on the controller board.

**Delta Drive \$950 (excl. tax)**

Delta Computer Systems  
Pty Ltd  
13/83 George Street  
Parramatta NSW 2150  
Tel: (02) 633 4055

## IBM releases Systematic

*Systematic*, a software product incorporating a range of functions to build commercial applications without programming, has been released by IBM Australia.

Developed by Interface



The Australian developed Delta external drives for the Apricot microcomputer

Management Systems, *Systematic* delivers its no-programming power to customise complex applications. It was designed to run on the IBM PC XT, or AT. *Systematic* has four main features — The Guided Pathway, Autopilot, Microscope Monitor and Librarian.

The Guided Pathway reduces the amount of time spent on broad design. In large organisations, project leaders can delegate different segments of an application to developers and be confident that the entire system will integrate according to established specifications.

Once the broad design has been created, it is passed on to Autopilot. It frees the designer of the task of writing procedural logic codes for all the normal functions of commercial applications such as menus, screen handling, edit checks, calculations, data integrity, file access, function key presentation, error messages, cursor control and many more.

Interactive testing is done entirely within the Development System using the Microscope Monitor. For example, once a screen process has been designed, it can be switched directly to Microscope Monitor which immediately checks the design. It can check editing calculations and ensure the right data is stored in the right file.

Having built an application, Librarian is used to create high

quality documentation. System documentation is generated automatically. Librarian can be used to create and update User Reference manuals. Also, it automates screen layouts, menus, headings, page numbers, tables of contents and indexes.

IBM  
100 Walker St  
North Sydney NSW 2060  
Tel: (02) 923 5123

## A thoughtful word from Microsoft

Microsoft has announced a special networking version of *Microsoft Word* with style sheets and glossaries which can be shared and used by everyone on the network. *Microsoft Word* for networks supports the IBM PC Network and Microsoft Networks (MS Net), as well as networks from 3Com, Corvus, Novell, Orchid, AST, Fox, and Nestar.

The product supports file-locking on the MS-DOS 3.1 network and offers file-sharing, so that files like style sheets, printer drivers and on-line help can be used simultaneously by different users.

With *Microsoft Spell* on the network, specialised dictionaries can be created for all users to check their documents. They can also create their own custom dictionary that can be accessed by *Microsoft Spell* at the same

time. *Word's* merge facility can draw data from a common mailing list on popular database programs such as *dBase II*, *dBase III*, or *R:Base 5000*.

Network applications have special distribution, licensing, and pricing policies.

*Microsoft Word* for networks requires DOS 2.0 or higher, an MS-DOS based file server with hard disk drive, and one double-sided disk drive. Each work station requires 256K of memory (320K recommended). A disk drive is not required on the work stations.

**Word (network version) five work station package \$1950**  
Microsoft

1/17 Rodborough Rd  
Frenchs Forest NSW 2086  
Tel: (02) 452 5088

## Learning for beginners

FlipTrack Learning Systems are for first time users wanting to learn programs.

With the emphasis on doing, rather than reading, the user is guided through all levels by spoken voice cassettes.

The FlipTrack tutorials provide in-depth, "hands on" experience to the busy professional who is unwilling or unable to spare the time for reading books, manuals or on-screen instructions.

The audio format allows the learner to progress through the course in an interactive way far quicker than with conventional tutorial methods.

The package for a particular program comprises the discs for the specified computer, a fully indexed lesson summary and the cassettes. Any standard cassette player may be used, with no computer hook-up required.

Packages available include *Lotus 1-2-3*, *MS-DOS*, *Wordstar*, *Multiplan* and an introduction to *BASIC*.

Barrington Corporation,  
P.O. Box 683,  
Norwood 5067.  
Tel: (08) 332 0122

## RAMpage breaks 640K barrier

A powerful expanded memory board for the IBM Personal Computer, which exceeds the PC-DOS limit of 640K with 2M of "paged memory", has been announced by Sourceware.

**RAMpage**, developed by AST Research Inc., of California, runs on the IBM PC, XT and compatibles, and offers full compatibility with the Lotus Development expanded memory specification (EMS). This provides **RAMpage** users with a more flexible paging scheme that accelerates the performance of application and multi-tasking software. The expanded memory capacity allows users to run the wide range of powerful integrated software packages available, including *Smart*, *Lotus 1-2-3*, *Symphony* and *Frame-work*.

"Paged memory" is the expansion of PC memory beyond the 640K limit which resides outside the PC's total addressing range of 1M. It is accessed in 16K "pages" through the use of AST's expanded memory manager software, which works with the application software to swap these pages in and out of the PC's normal address range, as needed.

"Paging" occurs at high RAM speeds, and allows the user to expand memory up to 8M using EMS software.

**RAMpage** supports "split memory addressing" which rounds out system memory to 640K in any PC or compatible, and adds remaining **RAMpage** memory as expanded memory simultaneously.

It features AST's *SuperPak* utility software — *SuperDrive* and *SuperSpool* — which access the **RAMpage** expanded memory, leaving the 640K conventional memory area free for other applications.

Sourceware Pty. Ltd.  
4/73 Albert Avenue  
Chatswood NSW 2067  
Tel: (02) 411 5711

## Concurrent applications

Sourceware says up to nine large applications can be run concurrently by *Desqview*, a multi-window software integrator developed by Quarterdeck Office Systems for the IBM PC.

It is a high-performance multi-tasking/windowing program which is designed to run PC- and MS-DOS software without requiring any modification. *Desqview* runs on the IBM PC, XT, AT and compatibles.

Sourceware's marketing manager, Cameron Esslemont, says: "*Desqview*'s ability to run several applications simultaneously, boosts users' productivity and enhances the functionality of both their hardware and software systems."

He says *Desqview*'s functionality can be enhanced by the use of expanded memory boards and turbo boards, which give users the memory and input/output capabilities to run sophisticated software.

*Desqview* will run large integrated packages, such as *Lotus 1-2-3*, the *Smart* Series, *Framework II*, and *Symphony*. Sourceware is offering *Desqview* with its range of multi-function cards from AST Research Inc.

In addition to multi-tasking capabilities, *Desqview* provides individual windows to view each program, data transfer capabilities, keystroke macros, an autodialer, and menu-driven DOS commands.

It is compatible with the IBM TopView Program Interface Files and runs TopView-aware programs, such as IBM *DisplayWrite 3* and the IBM Assistant Series.

Sourceware Pty Ltd  
586 Pacific Highway  
Chatswood NSW 2067  
Tel: (02) 411 5711

## IBM mainframe software on a PC

A relational database management system is now available to all IBM users with the release of

IBM mainframe software for the IBM Personal Computer.

SQL/PC (structured query language) will help eliminate application backlog and provide data processing professionals with additional tools so that they can become more productive. The system will operate on the IBM PC, XT and AT.

The relational language SQL, IBM's fourth generation language in SQL/DS and DB2 on the mainframe is available on the IBM PC under PC DOS. SQL/PC provides users with the ability quickly to create and update their own tables, the facility to join data from several tables, a means interactively to define and format reports and a method of querying data by value without concern for file structure or where the data is stored.

Users with large loads on the SQL/DS or DB2 on the mainframe can now use the XT or AT to prototype new applications in SQL before running it on the mainframe. SQL/PC has a full screen relational update capability combining the enormous power of the SQL select command with the power of full screen relational update.

SQL embodies some dramatic innovations with respect to simplifying the tasks of accessing and managing databases. It is particularly suitable for the kind of information found in the databases in commerce, industry and government but foremost for flexible management applications.

One of SQL's outstanding features is the "automatic navigation" to the target data by specifying "what" is required without being forced to inform the machine "how" to get it. This "what" of SQL makes the databases established under SQL/PC readily accessible to users who have little or no knowledge of programming. This feature also enables application programmers to be more productive since they can concentrate on the essential logic and data requirements of their applications instead of concerning themselves

with the details of data representation.

In addition to query, this language encompasses data definition, bulk loading, updating (including commitment of changes or cancellation of changes), granting and revoking of authorisation and statements that support data recovery.

Other features of SQL/PC include data security, dynamic change of database descriptions, automatic data dictionary, automatic optimisation, view support, stored commands and routines, recovery, and full screen relational update. The number of databases is limited only by their size and available disk storage.

SQL/PC is functionally the same as the product SQL on mainframes. The performance on the IBM PC depends on the hardware configuration and the design of the tables and indexes.

IBM  
100 Walker St  
North Sydney NSW 2060  
Tel: (02) 923 5123

## Major additions from SPL

SPL (Australia) Pty Ltd have announced the first two of a number of major additions to the Omicron PowerSystems suite of financial management and accounting software — *Powerlink* and *Powercost*.

*Powerlink* enables a two-way flow between the *PowerLedger* module and a number of common spreadsheets such as *Lotus 1-2-3*, *Supercalc 2* and *3*, *Symphony*, *Micro FCS* and *Multiplan*.

*Powercost* Job Costing Module can be used for producing estimates and quotations and recording actual costs and income received, so that costs relating to a particular job can be monitored in detail at various user-defined stages.

SPL (Australia) Pty Ltd  
Level 7, Gordon Centre  
802 Pacific Highway  
Gordon NSW 2072  
Tel: (02) 498 8555



## New Microsoft Rbase

Microsoft says *Rbase*, a new version of the highly successful database management system is available for the IBM PC.

The company signed an agreement with Microrim, developers of *Rbase*, allowing Microsoft to distribute *Rbase 5000* under its own label in Australia, taking over from previous distributor, Imagineering.

*Rbase*, a powerful, easy-to-use, relational database, has a range of additional features, including the facility to compress a database in place, to modify a database structure with just one command and relieve the user from having to learn a complex programming language.

It also has a built-in compiler, an application generator, automatic menu generator, built-in macros and graphical database definition.

The program allows users to develop their own database applications and full and robust database applications can be developed with *Rbase's* powerful procedural language.

The File Gateway menu-driven system lets the user transfer data between it and other programs including Microsoft *Multiplan*

and *Word*, *Lotus 1-2-3*, *pfs:File dBase II*, mainframe ASCII and *Visicalc*.

### Microsoft Rbase \$1195

Microsoft  
17 Rodborough Road  
Frenchs Forest NSW 2086  
Tel: (02) 452 5088

## New goodies from IBM

IBM Australia has released five new software products designed to operate on the IBM PC, XT and AT. They are *AusData*, *Marktpac*, *Saltbush Series*, *Accounting One* and *Wordworm* and were released through IBM's Software Development Support Centre which helps local manufacturers with the development and business management of their products.

*AusData* is a data entry program designed to allow a key entry operator to enter data at maximum speed. Full verification facilities are provided along with the capability to display an existing record for confirmation. Invalid data is detected at the time of entry and concise messages notify the operator whenever an error is made. Two levels of 'help' files

also provide assistance.

Using *AusData*, an operator can program for different record formats to be presented in a predetermined order, insert an out of sequence document into correct order within the batch and conduct searches of the current data batch either by record number or field contents. Other functions include batch balancing and batch formatting.

*Marktpac* is a computerised prospecting system with the primary function of recording and maintaining both customer and prospective customer data. It allows marketing staff to perform organised follow-up programs and provides management with the tools to exercise control.

The *Saltbush Series* is a farm management system consisting of five major systems: general accounting, livestock accounting, general listing for records of such things as machinery, performance recording system and gross margins analysis.

*Accounting One* is an integrated accounting package designed for small to medium-sized business. It caters for the stock purchases through to the preparation of profit and loss and balance sheet statements.

Information can be entered as it comes in because the system will sort, organise and file it if a mistake is corrected in one file. *Accounting One* automatically corrects all files. Inventory levels and values can be adjusted automatically.

*Wordworm* is an educational spelling game which is based on the idea that not all words lend themselves to the neat rules of spelling. Difficult words are usually remembered by repetition and recognition of what the correctly spelt word looks like. The program uses a basic dictionary of frequently misspelt words and a game strategy that re-inforces the correct spelling of these words.

IBM has also released new programs for the JX. They are *Direct Helper*, *Attache Business Pack*, and *Typequick*, *Accounting One*, *Wordworm* and *Saltbush Series* also run on the JX. Software is available to run these on the IBM PC, PC XT and AT.

*Direct Helper* is a computer-based remedial reader designed to help children and adults overcome learning disabilities. *Direct* (Dyslexic Imaginative Reading Encouragement using Computer Techniques) *Helper* is a proven method of assisting people with learning disabilities, especially where more traditional methods of teaching have failed.

*Attache Business Pack* is a modular accounting system designed to meet the requirements of small to medium sized businesses and the operating divisions of larger companies. It may be purchased as individual accounting modules or in integrated packages.

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4793	131	104	CX3020	12	\$2,575.00	03/11/85
4794	102	101	CX3030	50	\$2,075.00	03/11/85
4795	102	101	MB3000	10	\$1,800.00	03/11/85
4800	129	105	MB3000	25	\$1,600.00	03/12/85
4865	102	102	MB3020	5	\$1,975.00	03/13/85
4870	129	105	MB3020	25	\$1,975.00	03/12/85
4874	102	102	MB3030	5	\$2,350.00	03/13/85
4875	102	101	MX3000	50	\$1,600.00	03/11/85
4970	131	103	MX3010	35	\$1,875.00	03/11/85
4973	131	104	MX3020	12	\$2,300.00	03/11/85
4975	102	101	MX3020	50	\$2,300.00	03/12/85
4980	131	101	MX3030	10	\$2,575.00	03/12/85
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Microsoft Rbase caters for 40 tables and 400 columns per database and a row of up to 1530 characters.



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### Turn an IBM PC into a Tektronix 4107

Grafpoint Corporation, represented by Dimension Graphics has released the TGRAF-07 emulation software for the IBM PC XT and AT to turn the IBM PC into a high-resolution terminal, providing full compatibility with the Tektronix 4107 terminal, plus a range of extra features and peripheral support.

The company says the product represents a substantial saving over the cost of the Tektronix 4107. A typical IBM PC XT with hard disk, color graphics and TGRAF-07 software will retail for less than the cost of the Tektronix terminal.

Dimensions says the TGRAF terminal will be able to perma-



**The advanced Series 8 inch voice coil technology from Priam — designed to improve data storage**

nently store and recall pictures using the PC's disk, providing an effective local metafile facility. All the local segment capability is emulated by the PC; functions such as zoom, pan and segment transformations are efficiently accomplished in the PC's 'local intelligence', says Dimension.

Using TGRAF-07, images such as maps or CAD drawings can be defined and individually manipulated as separate layers. Up to 64 windows (views) can be defined and each graphic segment can be assigned to any or all of the windows. By allowing the user to move between different windows he/she can develop complex graphic detail very easily.

The graphical features are complemented by full ANSI, DEC VT100 and VT52 alphanumeric screen and cursor control emulation. The set-up parameters for both graphics and alphanumerics are menu-driven, and appear in plain English on the screen, says Dimension, and the picture on the screen may at any time be printed on a color printer: Tektronix 4695, Diablo C150, Epson JX80, Epson MX/FX80 (monochrome graphics).

The graphic cursor may be controlled by the arrow keys on

the PC keyboard, or by any of the following devices:

Summagraphics Bitpad, Microsoft Mouse, Atari Trackball, Scriptel Tablet, Mouse Systems Mouse.

TGRAF-07 requires at least 256K and can use up to 640K display memory. Only one flexible disk drive is necessary. The following color cards are supported: IBM Enhanced Graphics Adaptor, IBM Professional Graphics Adaptor, Verticom M-16 or M256, AT & T Display Enhanced Board, NEC APC 111 Graphics.

#### TGRAF-07

*Dimension Graphics  
265 Miller St  
North Sydney NSW 2060  
Tel: (02) 929 5855*

### Bank-switching memory board

Emulex Corporation's Persyst Stretch memory board offers up to 2M of socketed RAM for the IBM PC or compatibles, to support the new bank-switching capabilities in Lotus 1-2-3, Symphony, and Framework.

The expanded memory specification, jointly developed by Lotus and Intel is a software

standard that allows PC-DOS applications to address paged memory above the 640K limit.

The corporation says Stretch enables users of the newest versions of Lotus, Symphony and Framework to build larger database and spreadsheet files.

Stretch features support for 256K RAM chips, switches for address selection, page registers for memory mapping and 0-2 M expandable memory (socketed). Every Persyst board is circuit tested, burned-in at 55°C for 24 hours and then run through all IBM diagnostics inside a PC a minimum of five times.

Emulex Persyst products have a two-year limited warranty.

#### Persyst Stretch

*Emulex Corporation  
Suite 106, 160 Rowe St  
Eastwood NSW 2122  
Tel: (02) 858 4833*

### Bigger Microgrid digitisers

Minicom, Australian distributor of the Summagraphics range of graphics tablets, announce compatibility of their Microgrid series of digitisers with the new version (2.1) of the AutoCAD Computer-Aided Design program.

The Microgrid series are said to have increased accuracy, reliability, and ease of use and are available in sizes up to AO(150 cms x 105 cms) with the most popular being 90 cms x 120 cms and 50 cms x 50 cms.

In the past these have been typically used in large CAD/CAM environments such as mapping city, road, electrical and gas networks, as well as for advanced Computer Aided Design applications.

The standard Microgrid is opaque, though translucent and rear projection options are available.

#### Summagraphics

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Gareth Powell, Computer Editor, Sydney Morning Herald

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# Quick fixes



*User-to-User invites submissions from PC Australia readers. If you have any hints, tips or patches which you would like to pass on to other PC users, send them in to the following address, and the lucky authors of items published will receive a complimentary box of diskettes.*

*User-to-User  
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GPO Box 55A  
Melbourne Vic, 3001.*

## FOR Immediate Results

There have been many applications of the DOS 'FOR' loop in previous User-To-User columns. Although these commands are fine when used within a batch file, they cannot be used directly from the keyboard without modification.

To use the FOR command directly at the DOS prompt simply use a single '%' sign before the loop variable.

For example; to use the FIND command within a FOR loop to search through all '\*.txt' files and locate all occurrences of the text 'PC Australia', a batch file would contain the following command;  
For %%A IN (\*.TXT) DO FIND /N 'PC Australia' %%A

If, however, you wished to perform the same command from the DOS prompt, you would simply enter;

FOR %A IN (\*.TXT) DO FIND /N 'PC Australia' %A

Barry Johnstone

*Barry is quite correct. The FOR loop is not restricted to batch file applications and, if you prefer, can easily be activated from the DOS prompt.*

## In COMMAND

The RUN or ! command in dBase III allows users with more than 256K of RAM to have access to DOS commands. This handy feature can be extended by using the DOS COMMAND command. By simply entering RUN COMMAND or ! COMMAND while at the dBase dot prompt, you will find that you have loaded a secondary command processor (another copy of DOS). Once this processor is loaded, you can now work within DOS backing up files, formatting diskettes etc, without having to prefix every command with ! or RUN. To return to dBase simply enter EXIT.

William Jones

*When I first used this command it seemed like magic. You can load dBase, load the secondary DOS command processor as described above, then work with DOS keeping dBase ready for use when required. Note however, that dBase is still resident, and that you have 256K less RAM than usual. Also, be very careful if dBase still has some files open. Deleting an open file could have disastrous results.*

*Why is it we get so many dBase III submissions? Is it that dBase is so popular? Or is it that dBase attracts a lunatic fringe?*

## Need a FIX?

While using dBase III to write a simple posting program, I ran into a little trouble with the ROUND ( ) function. The problem occurred when I tested a reverse posting using negative numbers. It seems that this function always rounds in the same direction. (For example, ?round (14.23441,2) will display 14.23, while ?round (—14.23441,2) yields — 14.22).

As a result, I wrote a little sub-program that emulates the BASIC FIX ( ) function to round numerics towards zero. Use of the function is illustrated by the following examples;

- store 14.23441 to TESTNUM  
14.23441
- do FIX with TESTNUM, 2
- ? TESTNUM 14.23
- store —14.23441 to TESTNUM  
— 14.23441
- do FIX with TESTNUM, 2
- ? TESTNUM —14.23

The FIX.PRГ program

\* FIX.PRГ

parameters LNUM, LPREC  
if LNUM >= 0

store round (LNUM, LPREC) to  
LNUM else

store —round (—LNUM,LPREC)  
to LNUM

endif

return

Peter Martins

*This is another general purpose sub-routine for use within dBase III. While dBase does not have the capability for users to write their own function sub-routines, this is a good example of how to achieve the next best thing.*

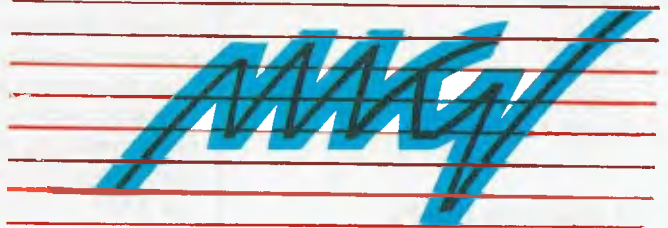
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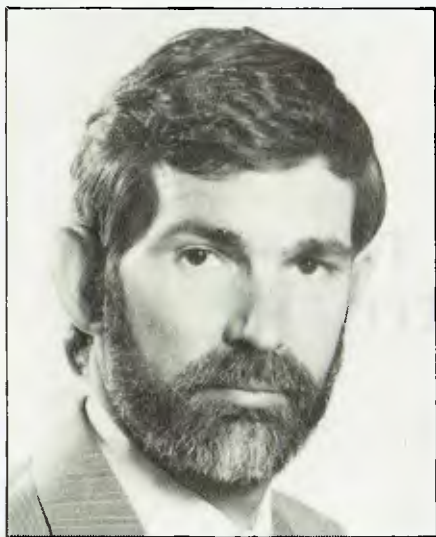
22MB formatted.

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Camperdown 2050.  
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# Readers' problems



*Spreadsheet Clinic invites submissions from PC Australia readers. If you have any hints, tips or patches which you would like to pass on to other PC users, send them in to the following address, and the lucky authors of items published will receive a complimentary box of diskettes.*

Spreadsheet Clinic  
PC Australia  
GPO Box 55A  
Melbourne Vic 3001

The major aim of Spreadsheet Clinic is to publish your solutions to spreadsheet problems. However, occasionally letters arrive with comments or questions, so I will cover a few of those here.

First of all, J. W. Boyd of Mitcham (Vic.) has correctly pointed out that some of the problems which occur with *Lotus 1-2-3* Release 1A are handled easily by new features in Release 2, such as locating circular references, performing page breaks, copying numeric results of formulae and generating a table of range definitions.

In spite of this, I will continue to offer Release 1A solutions as well as Release 2, because I believe that most

readers will still be using the older version, and I expect this to continue for some time. Although Release 2 has many superior features, large organisations with numerous copies of *1-2-3* are reluctant to face the expense of a mass upgrade and are not prepared to cope with the problems of co-ordinating usage of the two versions. However, as Lotus Development Corp has now withdrawn Release 1A from sale, there must eventually be a slow changeover as new users buy copies.

Don Jender from Canberra (ACT) has written asking if it is possible to print out *1-2-3* spreadsheets with column letters above and row numbers to the left, without actually entering these into the spreadsheet itself. He would also like to print out cell formulae in a grid pattern instead of the one-cell-per-line format provided by Lotus.

Obviously these capabilities would aid greatly in checking spreadsheets, but *1-2-3* falls down badly here. It simply does not provide these well-nigh essential tools. However *DocuCalc* and *The Spreadsheet Auditor* do exactly what Mr Jender wants, and more. *Auditor* will not only list circular references and show all cells in which a given cell is used for calculations, but will also print the result sideways if required. Both programs will also analyse other worksheet types such as *SuperCalc* and *Symphony*.

Until now, I have concentrated mainly on Lotus products, as the majority of letters received have pertained to *1-2-3* or *Symphony*, but the next letter is a reminder that there are other products being used out there.

## Lookups in Multiplan

I would like to offer the following tip on how to use the *Multiplan*

LOOKUP facility to edit cell data to ensure that values outside an acceptable range are identified. With LOOKUP (N,Ltable), *Multiplan* searches in the first column of Ltable until it finds the cell containing the largest value less than or equal to N. With LOOKUP the value in the last cell in that row of Ltable is returned as the result of the function. If the values in all cells in the first column are greater than N, a "#N/A" value is returned.

Range editing can be achieved by creating additional entries in the table. In spreadsheets where table lookup is used to access numeric values, the last row of the table should contain an N value slightly greater than the acceptable range. The last cell in the last row should contain an alpha character string (such as "ERROR"), and a similar value could be used for the lower range. Thus, when *Multiplan* performs a LOOKUP for a value N outside the range, the table provides a character string "ERROR", and when this is used in calculations the "#VALUE!" error message is displayed in that cell.

*The LOOKUP function has lots of useful applications and is found in some form in most major spreadsheets. For example, 1-2-3 has @VLOOKUP and @HLOOKUP. Mr Moberg has applied the function very creatively and it would be easy to modify to take into account a different month table for leap years, if required. Proponents of 1-2-3 will be quick to point out that 1-2-3 can perform date calculations much more simply with the @DATE function, which does take leap years into account (excepting 1900 as explained in the January issue of PC Australia). However, Multiplan has a number of nice features not in 1-2-3, including the capabilities asked for by Mr Jender in the previous item. How about some more letters on these?*

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# Defining function keys

Arthur Gleckler describes how to make use of the ANSI.SYS file to re-define keys on the PC keyboard.

**M**icrosoft DOS 2.0 provides installable device drivers, which allow standard control of input/output devices. Using device drivers, the programmer can achieve device independence, which allows the user to ignore the details of operating a device.

Included with DOS 2.0 is a keyboard driver: ANSI.SYS which provides the user extended cursor and screen control, as well as the ability to re-define the function of any key.

The extended functions are accessed through escape

sequences that are sent to the ANSI device driver. For example,

ESC [2J

is the escape sequence to clear the screen and home the cursor (ESC is character code 27).

The program listed below, written in Pascal, makes use of the ANSI.SYS key re-definition function. Using this program, a function key can be assigned a new definition, such as "dir". Unfortunately, ANSI.SYS keyboard re-definitions do not hold under IBM BASIC.

## LISTING 1: PROGRAM USING THE ANSI.SYS KEY REDEFINITION FUNCTION

( Program to Set Up Function Keys Using  
ANSI.SYS Keyboard Driver Under DOS 2.0  
Version 84D110.1 Pascal IBM PC  
Latest 840111  
Arthur A. Gleckler

Before this program is used, the ANSI.SYS  
keyboard device driver should be installed.  
This is done by placing the line

```
device=ansi.sys
```

in a file called CONFIG.SYS on the disk  
which the computer is booted from. A copy  
of the ANSI.SYS program should also be  
present on the boot disk.

```
PROGRAM FnKeys;
```

```
TYPE
```

```
DefString = STRING [20];
```

```
PROCEDURE ID;
```

```
{ Identify program to user }
```

```
BEGIN
```

```
WRITE (CHR (27), '[2J');
```

```
{ Clear the screen and home cursor }
```

```
WRITE ('Program to Set Up Function Keys');
```

```
WRITE (' Using ANSI.SYS Keyboard Driver');
```

```
WRITE (' Under DOS 2.0');
```

```
WRITE (' ');
```

```
WRITE (' The ANSI.SYS keyboard driver');
```

```
WRITE (' must be installed before this');
```

```
WRITE (' program is run.');
```

```
WRITE (' ');
```

```
END;
```

```
PROCEDURE DefineKey (FunctionKey:INTEGER;
```

```
NewString:DefString);
```

```
{ Sends codes to ANSI.SYS keyboard driver
```

```
to redefine a function key; function keys
```

```
have extended ASCII codes, with a 0  
followed by a number 59-68 for function  
keys 1-10, respectively
```

```
}
```

```
BEGIN
```

```
WRITE (CHR (27), '[O;');
```

```
WRITE ((FunctionKey + 58):2, ';');
```

```
WRITE (NewString, ';;13p');
```

```
END;
```

```
PROCEDURE SetupKeys;
```

```
{ Ask user which key to redefine and what  
new definition is
```

```
}
```

```
VAR Number : INTEGER;
```

```
Definition : STRING [20];
```

```
BEGIN
```

```
REPEAT
```

```
WRITE ('Please enter the number');
```

```
WRITE (' (1 - 10) of a function');
```

```
WRITE (' key to redefine');
```

```
WRITE (' or enter 0 if all key');
```

```
WRITE (' redefinition is complete.');
```

```
WRITE ('Function Key Number: ');
```

```
READLN (Number);
```

```
IF Number IN [1..10]
```

```
THEN
```

```
BEGIN
```

```
WRITE ('Enter definition');
```

```
WRITE (' for F', Number:1, '.');
```

```
WRITE ('Definition String: ');
```

```
READLN (Definition);
```

```
DefineKey (Number, Definition);
```

```
WRITE ('F', Number:1, ' = ');
```

```
WRITE (Definition);
```

```
WRITE (' ');
```

```
END
```

```
UNTIL NOT (Number IN [1..10]);
```

```
WRITE (' ');
```

```
WRITE ('Function key setup ended.');
```

```
END;
```

```
BEGIN
```

```
ID;
```

```
SetupKeys
```

```
END.
```

# Turbo VDISK

Ted Mirecki describes a Turbo Pascal program to access a virtual disk at any time during system operations.

**R**AM disks implemented by device drivers (such as IBM's VDISK) have several advantages over those implemented as resident programs (such as AST's SUPERDRV). The latter must reproduce faithfully in memory the format of a physical disk, including two copies of a full-sized File Allocation Table (FAT), 2½ or 3½K segments of directory, and space allocation units of 1K each. Device drivers, on the other hand, can establish nonstandard disk formats with a single smaller FAT, shorter directories, and smaller allocation units, to make better use of the space available in memory.

Device drivers can be invoked through CONFIG.SYS only, but not by a command typed at the DOS prompt. The system reset cannot be avoided; however, it, as well as the editing of the CONFIG.SYS file, can be automated with the help of the Turbo Pascal program listed below. VDISK.PAS allows the installation and removal of the VDISK.SYS device driver on command.

Before using this command, a file called CONFIG.NVD (.NVD for No VDISK) should be created with the same contents as CONFIG.SYS except for the lines that install VDISK. In some cases, where VDISK is not normally installed when the system is first booted, CONFIG.NVD and CONFIG.SYS will be identical. VDISK.PAS assumes the system will be booted from the C: drive. If necessary, the program's two ASSIGN statements can be instructed to use another drive.

To install the RAM disk, the user types VDISK followed by parameters specifying the size and other characteristics of the RAM drive (see the "Configuring Your System" chapter in the DOS 3.x manual for help with this). If a RAM disk is already installed, this step will install an additional disk that will be designated by the next drive letter. An important point to remember, however, is that each execution of the VDISK command causes a system reset and will destroy the contents of previously installed RAM disks, print spoolers, and any other memory-resident data and programs.

## LISTING: VDISK.PAS

```
Program VDISK;
var
  ConfigSys, ConfigOld:   text;
  i, nparms:              integer;
  line:                   string[128];

begin
  assign(ConfigSys, 'c:\config.sys');
  nparms := ParamCount;
  if nparms = 0 then (any command line parms?)
  begin
    (no: copy file w/o vdisk to config.sys)
    assign(ConfigOld, 'c:\config.nvd');
    rewrite(ConfigSys);
    reset(ConfigOld);
    while not EOF(ConfigOld) do
```

Typing VDISK without any parameters uninstalls all RAM disks. Therefore, the default configuration (64K, 128-byte sectors, 64 directory entries) always should be specified by at least one parameter.

The VDISK.PAS program tests for the presence of any command-line parameters and performs one of two functions depending upon the outcome of that test. If command-line parameters are present, VDISK.PAS opens the CONFIG.SYS file and appends to it a line consisting of the text `device=vdisk.sys` and the parameters from the command line. If, on the other hand, no parameters are found, the program copies CONFIG.NVD into CONFIG.SYS. As a result, all of the lines that install VDISK are removed.

The BIOS reset procedure (initiated by branching to absolute address FFFF:0) is performed both when the system is turned on and by an Alt-Ctrl-Del reset. The keyboard reset, however, posts a flag of 1234H in location 40:72 before branching. This value signals the reset procedure to skip the time-consuming memory testing that is performed at power-up. VDISK.PAS also posts this flag before branching, thus allowing for the shorter reset sequence. The flag is inserted into the absolute location by Turbo Pascal's equivalent of a BASIC POKE; it is assigned to the predefined MemW array.

Note that after using the VDISK command, the next keyboard reset or power-on will configure the system according to the latest contents of CONFIG.SYS. If VDISK normally is excluded from a system's configuration, the user might need to insert a command into the AUTOEXEC file that will copy CONFIG.NVD to CONFIG.SYS. It is important to note that by the time AUTOEXEC gets to this command, CONFIG.SYS will already have been processed. ■

*Ted Mirecki is a corporate planner and is responsible for developing decision support systems.*

```
begin
  Readln(ConfigOld, line);
  Writeln(ConfigSys, line);
end;
end
else begin
  (append 'device=vdisk...' to config.sys)
  append(ConfigSys);
  write(ConfigSys, 'device=vdisk.sys');
  for i := 1 to nparms do
    write(ConfigSys, ' '+ParamStr(i));
  writeln(ConfigSys);
end;
close(ConfigSys);
MemW[$40:$72] := $1234;      (set warm boot flag in BIOS data seg)
inline($EA/0/0/$FFFF);      (JMP FFFF:0000 to reset system)
end.
```





Start...



...finish.



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East	8	30	39	41	30	42
West	12	24	45	48	14	15
Total	211	351	552	679	119	344



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# Bulletin board

## PC User Groups

### MELB-PC

Contact: Tim O'Connor (03) 830 5067  
Time: 6.00pm second Wednesday  
Venue: Clunies-Ross House  
191 Royal Parade  
Melbourne

### Sydney PC User Group

Contact: Ana Calligeros (02) 290 3655  
Time: 5.45pm third Monday  
Venue: Price Waterhouse  
11th Floor, 50 Bridge Street  
Sydney

### Perth PC Micro Users Group

Contact: Tony Farrell (09) 481 0011  
Time: 5.30pm first Tuesday  
Venue: CTA  
54 Havelock Street  
West Perth

### IBM-PC Users Groups (SA)

Contact: Don Richards (08) 261 9590  
Time: 7.30pm first Thursday  
Venue: 173 Wakefield Street  
Adelaide

### ACT PC Users Group

Contact: Nick Hammond (062) 86 1102  
Time: 8.00pm fourth Monday  
Venue: Main Lecture Room  
Canberra TAFE (Reid)  
Canberra

### The Illawarra IBM-PC Club

Contact: Ken Jeffrey (042) 74 0442  
Time: 7.30pm first Tuesday  
Venue: John Lysaght  
Springhill St Training Centre  
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## BBS Directory

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PC Connection IBBS (03) 528 3750  
HiSoft IBBS (03) 799 2001  
Computers Galore (03) 561 8497  
The National (5pm-9am) (03) 818 1934  
Down Under (03) 429 5819

### New South Wales

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PC User Group (02) 238 9034  
Micro Design Lab (02) 663 0150  
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Perth PC Users BBS (09) 227 9229

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Contact: Richard Womack (02) 997 1554.  
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Centre, 2nd Floor, Cnr York and Market  
Streets, Sydney.

#### dBase Users Group

Address: PO Box 297, Neutral Bay Junction,  
NSW 2089. Contact: Maria Lengas  
(02) 908 3458. Meetings: 6.30pm 2nd Tuesday,  
Cowper Room, St Andrews House, near Town  
Hall Station, Sydney.

#### Framework User Group

Address: PO Box 297, Neutral Bay Junction,  
NSW 2089. Contact: Catherine Rosenbrauer  
(02) 74 1961. Meetings: 6.30pm 3rd Tuesday,  
ACS 1st Floor, 72 Pitt Street, Sydney.

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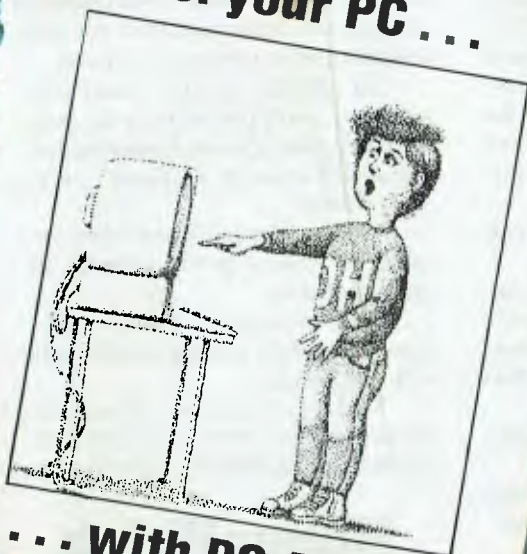
Don't miss the  
PC Australia Top Ten  
[Page 15]



NOTICE.  
If you have any further  
PC community information  
for this bulletin board,  
Contact the Editor,  
Ian Robinson on (03) 6024122

The PC User Group in Sydney has spawned a  
number of special interest sub-groups (SIGs), which  
meet monthly at the Coopers & Lybrand Auditorium  
in Bligh Street at 5.45 pm on the following dates:  
**GENSIG** — **General Discussion Group** — first  
Tuesday. Contact: Catherine Rosenbrauer  
(02) 290 3655.  
**COMSIG** — **Communications Group** —  
second Monday. Contact: Geoff May (02) 699 3518  
**DATASIG** — **Database and Spreadsheet Group** —  
fourth Tuesday. Contact: John Pitera (02) 499 2400

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Institute Function Room  
Union Building, RMIT

### Western Australia

Address: 73 Outram Street  
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Contact: Aaron Regan (09) 322 1834  
Meetings: 7.30pm 2nd Tuesday  
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## Lotus User Groups

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Contact: Robert Taylor (03) 267 4800  
Time: 5.30pm first Tuesday  
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Melbourne

### Sydney

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Time: 5.45pm first Thursday  
Venue: Deloitte Haskins & Sells  
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### Adelaide

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Time: 7.30pm first Tuesday  
Venue: 173 Wakefield Street  
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### Perth

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Venue: Australian Bank  
2nd Floor, 190 St George's Tce  
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# Stunted growth?

**P**roponents of videotex systems will often point out their potential to surpass other media when it comes to immediacy, or "breaking" hot news stories. The space shuttle disaster gave me a rare opportunity to check out this theory, and I must admit to being sadly disappointed.

When I heard of the disaster on the radio first thing in the morning of 29 January, I immediately logged in to Viatel and was disappointed to find no mention of the shuttle, which had exploded four hours before. In fact, when it finally did get a mention it was in an obscure share market advisory section, as a possible excuse for the falling value of Lockheed and Rockwell shares in the US. I then had another look at the news section of Viatel and again was disappointed.

Despite the fact that most of the big media organisations have shown an active interest in videotex and have reserved multiple frames as service providers, not one of them is really using the system's potential as a dynamic, timely source of information. Although news stories flood into these organisations continually from around the world, all that can be found on Viatel are thinly-veiled advertisements for what can be found in the latest issue of the newspaper or magazine. Is this simply a lack of understanding of the technology, or is there something deeper behind it?

Many years ago, the initial onslaught of the electronic media, particularly television, led inevitably to grave predictions of doom and gloom for printed media. The advent of videotex, networking and electronic mail have all added fuel to this argument, yet newspapers, magazines and books continue to be as invaluable as ever. These grim predictions have as much credibility as those espoused 10 years ago claiming that by 1986 the typical office would be devoid of paper. Of course there is

a future for print media, and there always will be.

Inevitably the role of the print media will alter, just as it has evolved in the past. But withholding information from online services until after it has been published in printed form seems to be a particularly backward, head-in-the-sand approach.

People appreciate timely news coverage, as has been proved by the successes of afternoon edition newspapers and early morning TV news, particularly in this shrinking globe where news is happening 24 hours a day. So despite such short-term obstacles, online news services are destined to become an indispensable part of our lives. Like live TV coverage, they represent what is happening NOW — not yesterday, not six hours ago or five minutes ago.

Videotex as a news medium also holds an important trump card over television — interactivity with its audience. The ability to receive instant feedback on any information displayed, although not yet explored to any extent, is an important

advantage of videotex. Simply knowing the number of people accessing a certain item of information at a particular time can provide vital marketing data, and getting their input takes things one step further. Just imagine how this feature could be exploited in the lead-up to an election, for example. Looking at the ways in which Viatel is being used, we obviously have a long way to go. But then again, parallels can be drawn with the early days of any new media.

Anyway, why not try it out for yourself? Next time you hear of some earth-shattering piece of news, log into Viatel and see how many minutes, hours or days it takes before any mention of it appears on your screen. At the moment, the chances are that it will take at least a day to appear, if at all, and even then in a very truncated form. We can only hope that this delay is reduced as the traditional news providers realise that this particular new technology is not going to put them out of a job. (Not overnight, anyway.)

RECEIVER'S VIATEL NO: 360241220  
RECEIVER: PC Australia

DATE: SAT 11 JAN 1986 09:47:17

TO: US 00115,

Congratulations on your videotex section. It is very encouraging to see that someone is at last covering Videotex with a positive angle and giving a good indication of how Videotex can be used. A number of other magazines have taken the attitude that Videotex is more of a novelty than a tool and treat it as such.

All the best,

FROM: JAMES PARKER

SENDER: The Western Front  
SENDER'S VIATEL NO: 069000080

Readers are invited to do as James Parker has done; send a message to Vi Adelle on mailbox number \*360241220#.

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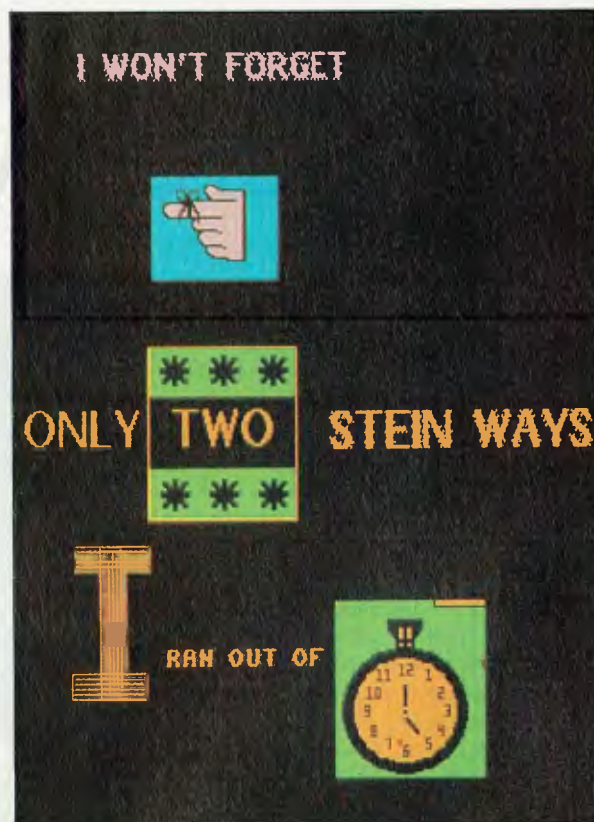


# Coming up

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As well as his PC Storyboard, **Les Stein's** usual back page column will be there, along with **Stephen Murray's** User-to-User pages and **John Green's** Spreadsheet Clinic section. **Vi Adelle** will once again report on the state of the art in PC videotex and **Ian Robinson** will present the latest news, editorial comment and a multitude of new PC products.

Judging by the number of subscription applications received so far, we also expect to be closing off the free subscription offer sometime in April, as we should hit the 15,000 mark around about then. So if you haven't yet sent in an application — don't wait any longer — subscribe now!



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# An overcrowded market

In the thick of the New Jersey Computer Fete, I was wedged solidly between two enormously fat men. One was tilting towards a \$165 10M hard disk, while the other was straining to get a glimpse of a \$300 clone called an "IPM". We all sort of squiggled and wiggled and I popped out like a cork, only to be bowled over by a muscle man wearing a cap which said "Mess with the Best, Die like the Rest."

It was my own fault, as I had vowed to overcome all obstacles on a pilgrimage to find the ultimate American computer bargain. In the US, when the going gets tough, the tough go shopping. Hordes of hackers had come to this Fete to be squeezed into a room slightly larger than a Melbourne tram and to paw over the cheapest bargains this side of Hong Kong. In fact, they were even selling Taiwan expansion boards which appeared to be stuck together with Won Ton noodles!

The Fete was a nightmare. As the crowd literally ebbed and flowed, boxes of ICs were knocked over, there were shouts of "make room, someone has fainted," and feeble cries for help came from the direction of the floor. One man was standing firm and swinging a 512K board to carve out some breathing space.

Yet the crowds kept coming — spurred on by radio advertisements offering brand new 64K two-drive CP/M machines for an unbelievable \$35. Yes, the bargains were really there if you could get to them. Old versions of Lotus 1-2-3 for \$15, the complete Attache accounting suite for \$25, boxes of 20 disks for \$3 (all in good old US dollars, of course).

Computers for the people. You could see eyes rolling up to heaven. Everyone was in a state of euphoria and beatitude — like the peasants fighting over the scraps left by gracious lords. Beat them and cheat them — they will grovel for more.

The improbable sight of a woman



pushing a stroller with a hysterical toddler in the middle of this madness brought me to my senses. What are these people doing? What is it about computers that makes dribbling idiots out of decent folk?

I asked one man why he was buying a copy of obsolete VisiOn. He explained "It's for my collection — I'm a software junkie." Of course, that's it! A drug, an opiate; computers are addictive. The man, you see, does not need VisiOn. In fact, he probably owns half a dozen spreadsheets without having a single number to crunch.

I am not really sure what it is about hardware and software that makes us so covetous. Just before the movement of the crowd hurled me out the exit, I observed a woman desperately pleading with her husband not to spend \$1000 on an EPROM burner. It was a pathetic spectacle. He seemed to be listening to some far off Pied Piper and her words had no effect.

I can quote you many instances where the obsession simply overwhelmed a hapless soul. No, I have no statistics nor scientific proof,

but I have observed that computers can ruin lives, destroy marriages and create the obsessive, introverted behaviour that leads to gross distortions of reality.

Don't panic! This does not mean that you will soon move from Lotus 1-2-3 to a park bench with your possessions in a paper bag. Just note that there are hundreds of these shows where an enormous group of people congregate with an unhealthy compulsion towards hardware and software. For whatever reason — a personality weakness, bad toilet training — they and computers form a deviate couple.

It is just possible that this is a phenomenon of the greedy materialistic United States, where money and things are the source of prayer and contentment. We have no bargain computer fetes in Australia to compare. In fact, if we use church or school fetes as a measure, I have never observed compulsive behaviour, although I did once notice a man stuff himself with five lamingtons in a row.

Well, let me check you out to see if you have the potential to be a computer loonie. First, look in your box of disks and make a note of how many programs you have there which you never use. I estimate that if you have more than five, you are on thin ice. Second, what rationale runs through your mind when you illegally copy someone's software? Caught you! The fact that you obtain software illegally means your computer resistance threshold is dangerously low.

Well, maybe you think this is all a heap of rubbish. Okay, big shot — put the magazine down and stay off your PC for a week. See if you can forget about it completely. No browsing through ads, no flipping through mags at the newstand, and no fleeting glance as you pass the machine. Go ahead, you are a sound, rational adult — put the magazine down . . . ■



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**Microstuf Transporter** allows your PC to send and receive information even when there's no one present at either end of the line. At the time you specify, it will wake up, place the call, perform the task you designate and then hang up. It's ideal for branch to branch communication at night when STD rates are much reduced.

And when you buy Transporter you get a copy of Crosstalk *free*.

**Microstuf Remote** allows you to call in to your PC and run programs on it, from anywhere. So if you would like to work on your office computer from home, all you need is a terminal, a modem and Remote.

To find out more about these revolutionary software packages, talk to your IBM or compatible PC dealer. He'll show you how easy and economical it is to move the world a whole lot closer to your office.



**SOURCEWARE**

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